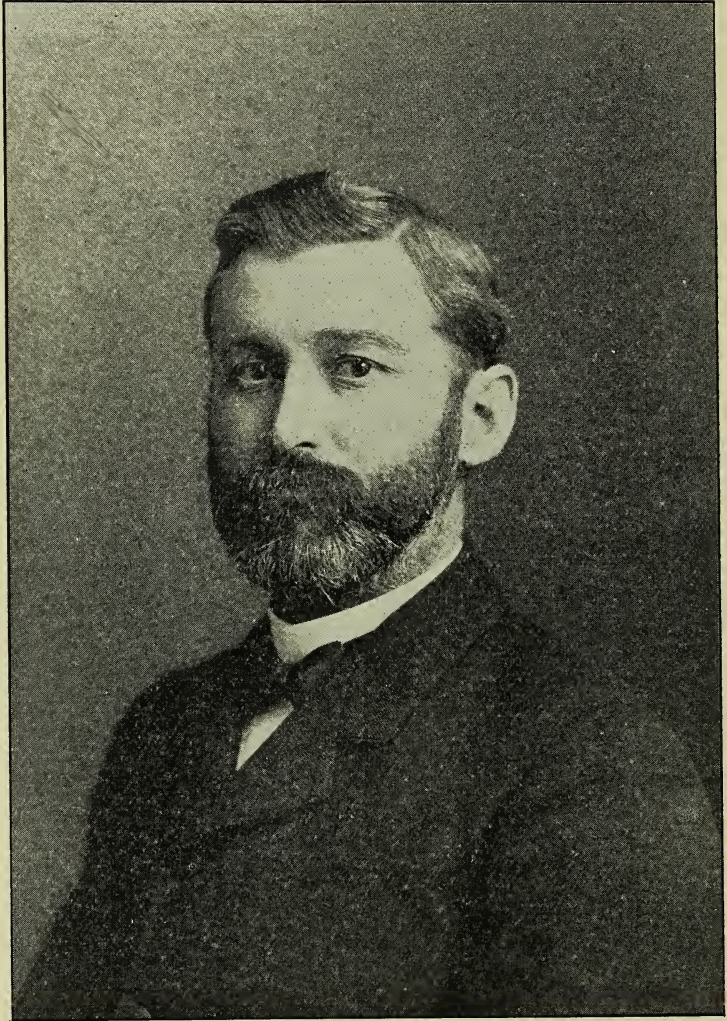


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THOMAS FORSYTHE HUNT,
Dean of the College of Agriculture and Domestic Science.

THE AGRICULTURAL STUDENT.

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EDITORIAL CHAT.

With this issue the sixth volume of the AGRICULTURAL STUDENT is completed. We feel that our efforts have been attended by some degree of success, and feel well repaid for the time and labor devoted to the interests of the STUDENT. We have endeavored to maintain the general tone of the magazine, and make it more and more a means by which the students can begin a connection with the Agricultural press, which, we hope, will continue throughout the remainder of their lives. The State expects those who have the advantages of a college education to pass it on to those less fortunate. In no other way than by the press can we come in contact with so large a number.

By far the larger number of the articles during the past year have been written by students and ex-students. These articles have evidently been greatly appreciated by our readers, and we wish to thank our contributors of the past year. That the student is attracting attention outside of the University is shown by the fact that during the past year we have received no less than three or four requests for complete files of the magazine to be placed on the shelves of prominent libraries.

We take this opportunity to thank the

staff for their efficient work throughout the year. All have cheerfully performed every task set them and the success of the magazine during the last year has been largely due to their faithful work. Trusting that the STUDENT may experience in the future the same hearty support it has received in the past, we say farewell.

Commenting upon the action of the Senior class with a view of lessening the costs of the Senior reception and promenade, The Lantern makes the following statements which are worthy of careful thought:

"We owe this not only to the students now at the University, but to future students and to prospective students. In an institution like this, which offers educational advantages practically free to all classes, every effort should be made to keep the legitimate expenses of a college course down to a minimum. The Ohio State University was founded by the State as a public institution of learning at which any person might receive the benefits of a University of high standing at a comparatively small cost. Every time that we increase expenses unnecessarily we keep a certain number of worthy young people from accepting these opportunities which the State has provided for them because they have not the

money necessary to keep up with the social life required at the University. Surely we do not wish to limit the sphere of usefulness of the University simply to gratify the whims of a few to whom money considerations are of small moment."

We are pleased to note the interest taken in our College of Agriculture by the National Stockman and Farmer, of Pittsburg. A recent issue contains two articles concerning the work of Professor J. W. Decker among the dairymen and cheesemakers of the state. The first is an editorial, entitled "Object Lessons," and reads as follows:

"Professor Decker, of the Ohio State University, has recently been in eastern Ohio giving some object lessons in dairying. This is worthy of special note because it is for that state the beginning of a movement for traveling dairy instructors. The Ohio State Dairymen's Association is fostering the plant, and the University is co-operating as far as possible. Much of Canada's uniform and successful dairying is the result of such instruction. Indiana is carrying out the idea of object-lesson instruction also. Note the sheep shearing contest to be held at Lafayette May 1, the plowing matches, the lecture on the fair grounds from animals shown there, and similar events. We may expect much good from such things in the future."

The second article is from the pen of Mr. Dillwyn Stratton, President of the Ohio State Dairymen's Association, and President and Manager of the Winona Creamery Company:

"LOCAL DAIRY INSTRUCTION."

"Prof. J. W. Decker, who came to Ohio State University from Wisconsin State Dairy School last fall, gave us four days last week, explaining, lecturing, illustrating by charts and stereopticon until we were all taught some parts of the scientific work. The ear and the eye ap-

peal to the reason and memory with double force, stimulating a scientific interest in the cow and her product that aids us to follow the work with intelligence. Prof. Decker was with Dr. Babcock through his experience that led to his great invention, and was the first to exhibit the Babcock test outside of Madison. His account of what it has done for the development of cows and the perfection of dairy machinery was very instructive. His stereopticon views of the European homes of different breeds of cattle and his views of various equipments for making butter and cheese in different parts of the world were valuable. It is a satisfaction to record that he gives our School at Columbus first place for facilities of instruction, and hopes next year to have it full of students.

"Take the course in dairying at the Ohio State University first, then supplement it by practical work. Our State Dairy School expends ten dollars on each student where he expends one. The magnitude of Ohio's investments dependent on such training justifies this expense; twenty-five million dollars invested in cows and five hundred millions in lands, buildings and dairy equipments are figures that aid us to estimate the importance of this industry.

"The Professor is willing to meet a few more appointments in this way, only asking that his expenses be borne by those whom he goes out to instruct. Any contemplating such meetings would do well to arrange soon, as his time is limited."

DILLWYN STRATTON.

Thus the work of our College is spreading among practical men everywhere, and its good influence is more and more appreciated by all who are interested in a higher and better agriculture.

We regret that we are unable to publish abstracts of the theses of the Senior class. Many of them are of unusual interest and would be of the highest interest to our readers.

News Items.

Through the kindness of Professors Hunt and Gibbs the Senior class in Agriculture enjoyed a splendid luncheon at the University Café, April 5. The guest of honor was Mr. J. E. Wing, one of the most prominent stockmen of the State. Mr. Wing is not only a very practical farmer and stock raiser, but also a prominent writer for the Breeders' Gazette and other stock journals. After luncheon Mr. Wing gave a very interesting talk to the classes in Agriculture, on the methods which have brought him success. He is one of the very few men who have successfully grown alfalfa in Ohio, and recommends it very highly as a forage crop. The planting, cultivation and curing of this plant were discussed by Mr. Wing, and called forth many questions from the students present. Mr. Wing makes a specialty of feeding "baby mutton." These lambs have heretofore been bought and then fed out, on corn and alfalfa chiefly, but more attention is now being given to the rearing of the lambs on the farm. His balance sheet for last year shows a handsome profit for the time and money invested, and Mr. Wing has no desire to give up country for city life. Such talks by practical farmers are of great interest to the students and we hope that in the future their number may increase.

We acknowledge the receipt of the splendid portrait "Canada's Ideal," with the compliments of the Farmers' Advocate of Ontario. The picture shows twelve notable Shorthorns, giving below each a short synopsis of their history.

We consider the Advocate a most valuable addition to our exchange list.

Space will not permit us to make mention of all the excellent exchanges coming to our tables. Suffice it to say that the entire student body thoroughly ap-

preciate the advantages given them by the free use of the STUDENT's extensive exchange.

The University Bulletin, Series 4, No. 21, of the College of Agriculture and Domestic Science, is now ready for distribution. This is undoubtedly the most complete bulletin yet published by the Department. It contains a complete outline of the courses of study in this Department, and a clear, concise statement of the equipment and facilities for instruction. There are also over thirty half-page cuts of views in and around the buildings. The list of alumni and of ex-students of the College since 1892 deserves especial mention. It was compiled at great cost of labor and time, and gives in compact form the address and present occupation of each former student. Of the seventy-six students for whom no address or present employment is given, the larger part of them failed to answer the letters of inquiry, although they were evidently received.

The following is a summary of occupations as given in the list:

Unknown	76
Farmers, gardeners and dairymen..	137
Creamery operators and cheese makers	41
Farm superintendents and employes	14
Employes of agricultural colleges and stations	18
Editors of agricultural and horticultural papers	4
Young women	25
Students in other colleges.....	15
All other occupations.....	46
Total	376

The Agricultural Department.

Few people in Columbus recognize the wide influence which the Agricultural Department of the O. S. U. exercises in its own particular line of industry. While

previous to the erection of Townshend Hall, the Agricultural students had no regular place for recitations or laboratory work except the small building now devoted to horticulture, to-day the magnificent building which they can call their own, proclaims to visitors at the University that the Agricultural students are a leading part of the student body of O. S. U. Not the least important factor of the College of Agriculture is the AGRICULTURAL STUDENT, a monthly magazine, edited and published by the Agricultural students of O. S. U. Captain Cope, Secretary of the University, says that the periodical reflects honor upon the institution and is one of the leading farming journals of the State. The publication is widely known and is a great advertisement for the University.—Columbus Citizen.

Thomas Forsyth Hunt.

Thomas Forsyth Hunt, M. Sc., Professor of Agriculture and Dean of the College of Agriculture and Domestic Science of the Ohio State University, was born January 1, 1862, at Ridott, Ill. He received his early education in the public schools and was prepared for college at the Freeport High School. He entered the University of Illinois in the fall of 1880, graduating four years later from the agricultural course with the degree B. Sc. Later he received the degree of M. Sc. from the same institution.

During the years 1885 and 1886 he acted as assistant to the Illinois State Entomologist, and while in this position wrote, in a series of miscellaneous essays, a bibliography of the insects injurious to corn. From this position he was appointed as Assistant in Agriculture in the University of Illinois, where he served until 1888, when the Illinois Agricultural Experiment Station was established, and he was made Assistant Agriculturist. While in this position he carried on many

valuable experiments, the results of which appeared in the station bulletins and were widely published by the agricultural press. His field experiments on corn were particularly thorough; their scientific and practical value being recognized by investigators and farmers everywhere. He was one of the very first to prove the value of shallow cultivation of corn. Feeding experiments carried on at the same time were no less valuable in their practical applications.

In 1891, after a most brilliant career at the Illinois Experiment Station, he was elected Professor of Agriculture in the Pennsylvania State College. He served there one year and was called to his present position. He is joint author with the late Professor G. E. Morrow of "Soils and Crops" a popular little book used as a text in many colleges and reading circles.

Most readers of the STUDENT know of the great advancement made by our College of Agriculture under the wise direction of Professor Hunt. Upon assuming his present duties in 1892 there were only forty-seven students in the agricultural courses with one instructor doing all the technical teaching. The College carried on its work in three different buildings, in laboratories and class rooms that were in no way adapted to the teaching of agriculture. Since that time the number of students has rapidly increased to one hundred and sixty-four; the number of instructors in technical agriculture has been increased to seven; the Department of Domestic Economy, one of the finest in the country, has been added; the Dairy School has been established and placed upon a firm footing; and the College is housed in Townshend Hall, a magnificent building, erected and equipped at a cost of more than one hundred thousand dollars. Without doubt our College of Agriculture is now one of the best equipped colleges of the kind in the

United States, and the high standing of our students and graduates bears evidence of its excellent work.

The results that Professor Hunt has accomplished and is accomplishing bespeak of his qualifications and ability as a man of exceptional business and educational worth.

OUR SENIOR CLASS.

Graduates in the Courses in Agriculture and Horticulture and Forestry.

Miss Laura A. Weisman is a Columbus girl, prepared for the University in the public schools of her own city. In the spring of 1896 she graduated from the High School and the next fall en-



tered the domestic science course at the University, the first year the course was opened for matriculation of students. Miss Weisman graduates this year with the degree of "Bachelor of Science in Domestic Science." Ohio State is the first University to confer this degree,

and Miss Weisman the first graduate who receives it. Her thesis, "Plans, Interior Views and Specifications of a Model Residence," enables her to put to a test the training of the course, as well as to utilize her artistic abilities.

Freelan Wilbert Schaeffer was born July 3, 1874, at Webster, Darke, County, Ohio, and received his preparatory education in the graded schools of that place, in the Clayton High School, Mont-



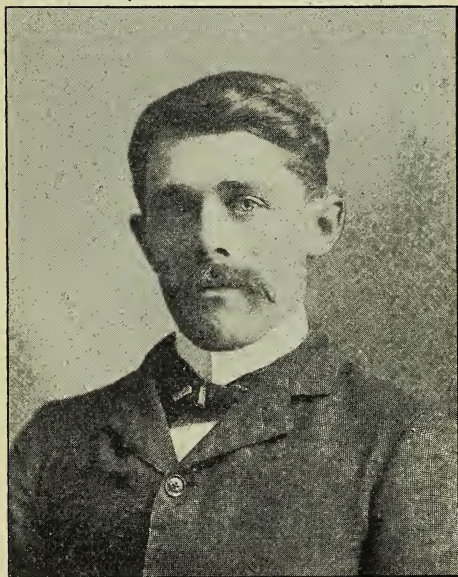
gomery County, Ohio, and at Ohio Normal University. He taught four years in schools of Montgomery County, two years as Principal of Glasgow Graded Schools. In September, 1896, he entered O. S. U., and will graduate from the agricultural course in June.

In the University Mr. Schaeffer has been known as a faithful, energetic student. He has for the most part supported himself by working on the farm during the school year and vacations. He is a member of Townshend Literary Society. Mr. Schaeffer has paid special attention to dairying throughout his

course, and we predict success for him in this line.

The subject of his thesis is "The Economy of Different Nutritive Ratios for Milch Cows," worked in connection with Mr. C. B. Steward.

Charles Benjamin Steward was born in Adelphia, Ross County, Ohio, November 24, 1874. He received the usual common school education, working on the farm during vacation. In September, 1895, he entered the University, and has continued in school ever since, in the main supporting himself by working on the farm chiefly in connection with the dairy department, of which he has been chief for the last two years.



Mr. Steward is a member of Townshend and Horton Literary Societies, holding many offices of honor in each. He is also a member of Alpha Zeta fraternity.

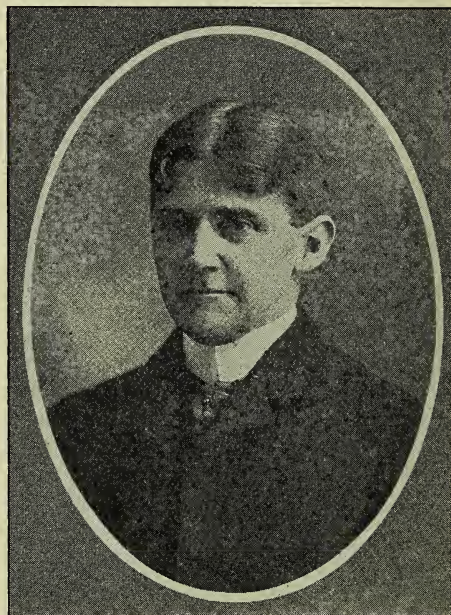
Mr. Steward has always taken an active interest in general college affairs and it is due in a great measure to his energy and perseverance that the Agricultural College has been so well represented in

general University affairs. He was Secretary of the Athletic Board in 1898-99.

Mr. Steward's record as a student has been of a high order. He intends to return to the University next fall and pursue post-graduate work.

The subject of his thesis is "The Economy of Different Nutritive Rations for Milch Cows," worked in connection with Mr. F. W. Schaeffer.

Merritt Finley Miller was born near Grove City, Franklin county, Ohio, July 7, 1876. He attended common school



for several years and entered Ohio Wesleyan in 1895, continuing throughout the year. In the fall of 1896 he entered the Agricultural College at the University. Here Mr. Miller has made an enviable record, being known by all as a faithful, conscientious student. He is a member of Townshend Literary Society, and has held with credit the offices of Secretary, Treasurer and Vice President. In '99, Mr. Miller was Captain of Co. A, O. S. U. Battalion. He has been Associate Editor of The Lantern during '99-'00,

and is a member of Alpha Zeta fraternity. By his modest and affable manners he has won the esteem of a host of friends who will bid him God-speed as he leaves O. S. U.

The subject of his thesis is "The Evolution and Comparison of the Reaping Machines."

Elmer O. Fippin was born September 18, 1879, at Briggsdale, Franklin Coun-



ty, Ohio. He attended the public schools until he was sixteen years old, when he entered the short course in Agriculture. After completing the short course he entered the long course in 1897. Mr. Fippin has held many positions of honor both in the Agricultural College and in the University. He is a member of Townshend Literary Society and has served as Recording and Corresponding Secretary, Vice President and President, and also represented her in the Debate and Oratorical League.

He was a representative of O. S. U. in the Intercollegiate debate with Adelbert in '99. In a military way Mr. Fip-

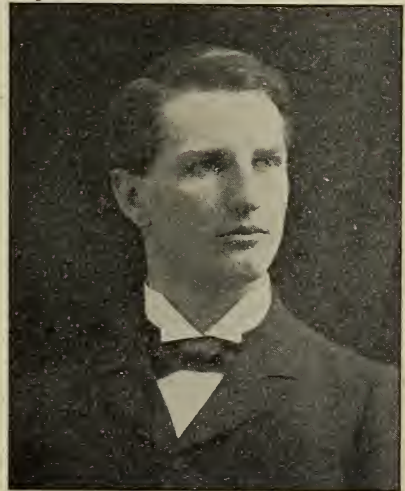
pin is not without honor. He won the silver medal in competitive drill in '97, and was Captain of Co. A in '98. In '99 he was promoted to the highest rank in the battalion—that of Major.

Mr. Fippin is an active member of the Y. M. C. A., serving as President for the greater part of this year. He was Y. M. C. A. correspondent for The Lantern in '99, and a member of the STUDENT staff during the present year. He is a member of Alpha Zeta fraternity.

As will be seen from the above honors conferred upon Mr. Fippin, he has taken an active interest in all general college affairs, and in which he has won distinction only upon his own merits.

The subject of his thesis is "An Inquiry Into the Causes of Plant Growth."

Frederic Wellington Taylor was born near Wooster, Ohio, January 25, 1876. He lived on a farm and attended district school until 1889, when he entered the Wooster High School, graduating in 1893. In the fall of '93 he entered the University of Wooster, where he spent three years in the Literary Course, elect-



ing at the same time scientific work preparatory to entering the Agricultural Course. In the fall of '97 he entered O. S. U. and completes the course this year.

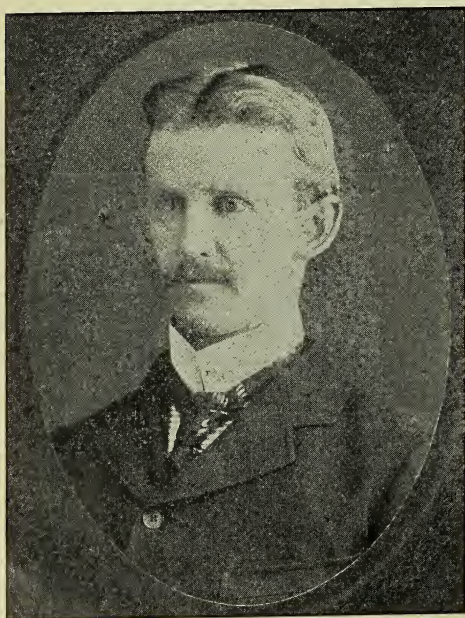
The summer vacation since '92, as well as the winters of '95 and '96 have been spent at the Experiment Station at Wooster, working on the farm, and in the chemical laboratory and mailing room.

In the University he has made a host of friends, among both professors and students, who predict for him a bright future. A conscientious devotion to his work, together with his native ability, has made him a leader in all his classes and has given him an enviable record as a student.

Mr. Taylor is a member of Townshend Literary Society, serving as President during the fall term of the present year. He was Associate Editor of *The Lantern* in '98-99, and has been a member of the *STUDENT* staff during '99-'00. He won the first prize given by W. B. Smith & Sons, last fall, for judging dairy cattle. Mr. Taylor is a member of Alpha Zeta fraternity.

The subject of his thesis is "The Evolution of the Plow."

John Thomas Dallas was born July 17,

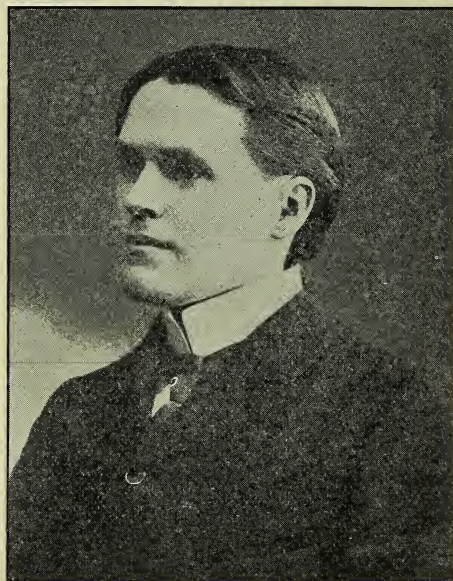


1876, in Jefferson County, Ohio. The first sixteen years of his life were spent on a farm after which he attended High School one year and the Normal School one year. He entered O. S. U. in 1893. In 1896 Mr. Dallas left the University and spent nearly two years in the Klondike gold fields. In 1898 he returned to O. S. U. well repaid for his stay in the far north, and will graduate this year. He is a member of Townshend Literary Society and has held nearly every office in the Society.

Mr. Dallas is a young man of affable manners and good address and his many friends predict for him a successful future.

The subject of his thesis is "The History and Efficiency of Creaming Devices."

Arthur Gillett McCall was born near Buena Vista, Scioto County, Ohio, and



attended country school and worked on his father's farm until 1892. In this year he began teaching in the winter and in the summer attending the Southern Ohio Normal School at Manchester,

Ohio. He graduated from the Normal School in 1895 and taught school the winters of 1895 and '96. In the spring of '96 he entered the long course in Agriculture and has been at O. S. U. continuously ever since.

Mr. McCall is a member of Townshend Literary Society, and has held the office of Critic, Vice President and President. He represented Townshend on The Lantern Board in '99, and has been Editor in Chief of the same the last half of the present year. He has been Weather Observer for the University since May, 1898.

Mr. McCall is an excellent student, not only in the studies particularly concerned in his course, but in general college work as well. By his enthusiastic support he has been of great good to general college affairs. He is a member of Alpha Zeta fraternity.

The subject of his thesis is "A Study of Ohio Spiders."

Charles Napoleon Mooney was born at Lockport, Cooke County, Ill., January 8, 1874. Later his parents moved to Chicago, where they lived until he was nine years of age, when they moved to Milan, Erie County, Ohio. Here young Mooney attended district school and helped at gardening. When he was fourteen years old his father died, throwing him upon his own resources. He worked for neighboring farmers during the summer and attended school in the winter. In the winter of '91-'92 he attended Normal School and the following year he went to Georgia, where he taught school and worked on a cotton plantation. After returning to Ohio he clerked in a store and attended high school at Milan. Mr. Mooney had now decided to teach school, and secured a school for the winter of '95-'96. In the meantime he was offered the free scholarship in Agriculture from Erie County, and finally resigned his school and en-

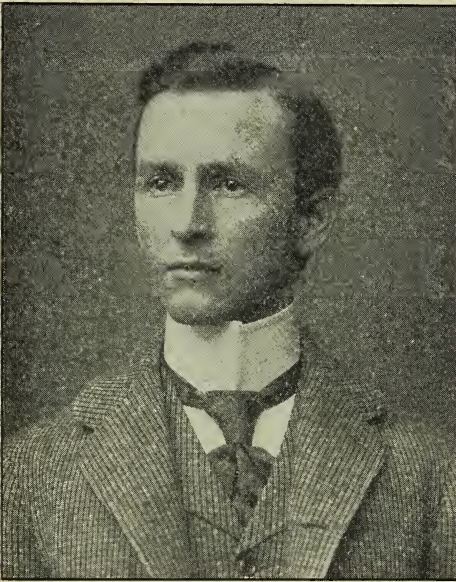


tered the University in the fall of '95. Mr. Mooney has supported himself in school and deserves great credit for his perseverance. In December, 1898, he received the appointment of Student Assistant of United States Weather Bureau at the Columbus Station, and has carried his College work at the same time ever since. Mr. Mooney's work as a student has always been of a high quality. He has always taken an active interest in College affairs and has received many honors from his fellow-students. He is a member of Townshend Literary Society and of Alpha Zeta fraternity. In the Battalion he has been promoted step by step from private to major, which office he now holds. He is also first sergeant of the 4th O. N. G.

Mr. Mooney has shown that he has the energy and perseverance which brings success, and his many friends predict for him a bright future.

The subject of his thesis is "An Inquiry Into Injury of Fruit Trees During Winter of 1898-99."

Cassius Clay Hayden was born on a farm in Perry County, Ohio, December 1, 1871. He attended the district schools regularly even after reaching the maximum school age. In September, 1891, he



entered Spring Arbor Seminary, Spring Arbor, Michigan, where he graduated in June, 1895. After graduating he returned to Athens County, where he taught school one year, entering the University in September, 1896.

Mr. Hayden has been an earnest, conscientious student, standing well in his classes, and at the same time has supported himself, to a large extent, by working on the farm throughout the school year and during vacation. He became a member of Townshend Literary Society in his Freshman year and has been an active member during his entire course, filling with credit nearly all the offices in the Society.

The subject of his thesis is "The Effects of Rainfall Upon Soil Moisture."

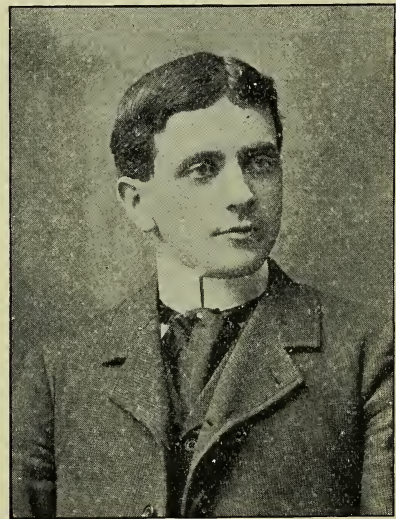
Frederick Jared Tyler will graduate from the course in horticulture and forestry. The subject of his thesis is "The

Geophilous Plants of Ohio." We regret that we have been unable to obtain a cut of Mr. Tyler, or further information which would enable us to give him the space he deserves.

Vernon Hayes Davis was born on a farm in Guernsey County, Ohio, March 4, 1877. He received his elementary education in the district school and spent his vacations working on the farm.

In the fall of 1895 he was elected from Guernsey County to a free scholarship in the Ohio State University, and in the fall of the same year entered the short course in Agriculture.

In the fall of 1897 he entered the long course, from which he will graduate in June. Mr. Davis' college course has been a series of successes. He has been a leader in Townshend Literary Society throughout his course and has served her in almost every capacity as an officer. He is a member of Alpha Zeta fraternity and a member of the Y. M. C. A.



In athletics Mr. Davis has achieved success as a foot ball player, being a member of the team of 1898 and 1899, two of the best teams O. S. U. has ever put on the gridiron. His greatest suc-

cesses, however, have been as a writer. In 1898 he tied for first place in an essay contest for a prize offered by W. I. Chamberlain for the best essay on "Fifty Years' Growth of Wheat at Rothamstead, England." Last year he won a hundred dollar prize offered by the Osborne Harvester Co., for the best thesis on "Corn Culture" written by a student of O. S. U. He served as a member of the AGRICULTURAL STUDENT staff in 1898-99, and as editor in chief the present year.

These many honors have been bestowed on Mr. Davis only as a reward for true merit. He has always been a thorough and an accurate student and both in class and out universally liked by his associates and instructors. We predict for Vernon Hayes Davis a future that will do honor to himself and his Alma Mater.

The subject of his thesis is "A Study of the Properties of Clays as Related to Soil Structure." H. C. P.

The Veterinary Department.

During the last year and part of the preceding, some of our most interesting cases have occupied space in THE AGRICULTURAL STUDENT, and it is hoped that they have been more or less interesting to our readers. Presuming that they have, a brief outline of the Veterinary Department, the course of study, etc., may not be out of place. Like all of the other Colleges, more or less of the course is taken outside of the Veterinary Department proper, and the superior advantages thus offered are not excelled by any similar College in the country. The first year of the veterinary student's College course is devoted to obtaining a good thorough foundation for the two following years, without which preparation, his education would be much less valuable in the end. In the first year the student acquires a thorough

knowledge of physiology, chemistry, histology and veterinary anatomy. No better equipped laboratories could be desired than are available in connection with these studies. A thorough understanding of the first year studies is the real foundation of all the veterinarian's subsequent education, and a short-term, two-year College, which, for lack of time, omits any of these essentials, sends its graduate forth poorly equipped to compete with those whose education has been more complete. The student is amply rewarded for his full year's work by the comparative care with which he is able to comprehend the second year's work, which consists of pathology, surgery matters, medicines and stock breeding, feeding, etc. Pathology is preceded by a course in general pathology, which treats of diseases in a general way, and is the most interesting and valuable part of the course, as the study of special pathology is nothing more than an application of the general principles. The study of materia medica is followed by one term of pharmacy, which enables the student to prepare the more essential and commonly used preparations. The third year studies consist of a continuation of surgery and pathology, one term of each of ophthalmology, obstetrics and horse-shoeing. No better course is offered by any Veterinary College in the United States, and the student who has successfully completed the course should be able to take front rank in the profession. Only a comparatively few years ago the local "horse doctor" was, as a rule, the most ignorant and oftentimes disreputable man in the community. While this is still true of some of the more obscure rural districts, the wide-awake, scientific, well-educated, veterinarian is fast pushing the empiric aside. It does not take long to convince the intelligent stock owners of the superior value of the services of the educated veterinarian, with careful and scientific methods, over

the ignorant empiric, with his rough-and-ready and really cruel methods. The empiric can never expect to treat anything but symptoms, and has but one remedy for colic, while the educated veterinarian, recognizing that colic is only a symptom of pain, seeks to find the cause and apply a rational treatment that will not only afford relief, but effect a permanent cure. Enough has been said to show our readers the value of a thorough education and the superior advantages which the O. S. U. Veterinary Department possesses, have been alluded to. One of the best features is our large clinic which gives the student the opportunity to daily apply the theoretical knowledge of the class room. Many of our most interesting cases have appeared in THE AGRICULTURAL STUDENT from month to month, but many very rare and interesting cases have not been mentioned for lack of space. Among the rarest of animal diseases are tetanus and tuberculosis in dogs, but both were seen during the past year. Rabies in all animals and in all its features has been studied, and many experimental inoculations made. Many interesting cases of colic have been brought in and post-mortem held on those which had a fatal termination. The clinic from year to year affords almost all the commoner animal diseases, and a good many rare and interesting cases. All the known surgical operations are performed as occasion requires. The cases in the hospital are assigned the students in turn, and a practical experience and confidence gained that could be acquired in no other way. All classes of domestic animals are brought to clinic and a large number are treated by visits. The student who comes here expecting to learn all about colic, moon blindness, etc., in a few months is often heard to remark that he "had no idea there was so much to it," and by the time his education is completed he has acquired a

respect for his chosen profession which will do much to place him on a level with the practitioner of the sister profession, human medicine. The outlook for the veterinarian was never brighter than today, and it is hoped that those intending to qualify themselves to follow the profession, either as practitioners or in the Government service as meat inspectors, will avail themselves of a Veterinary College like that of the O. S. U.; a State College where a grand education is free to all. Much more could be said, but the thoughtful student will not be slow to consider the vastly better education afforded by a State College, where money cuts no figure, over a proprietary College, where the tuition is the essential, the knowledge acquired by the students resting entirely with themselves.

C. W. E.

Birds of Economic Value.

(Continued from April.)

Next we have the Falcons. The White, Common, Gray and Black Gye-falcons are northern species only rarely seen in the United States. The Prairie Falcon is a beneficial western bird seldom found east of the Mississippi.

The Duck Hawk is widely distributed, but rather scarce. It is decidedly harmful in its food habits. The nest is usually built near water and the water-birds are its ordinary prey, but it often does much damage to land-birds and poultry. In flight it is very swift and is quite difficult to shoot. Fortunately for us, it is quite rare in Ohio.

The Pigeon Hawk is very rare in Ohio although found more or less throughout North America. It resembles a wild pigeon quite closely both in flight and while at rest. It is considered a harmful species.

Richardson's Merlin and the Aplomado Falcon are found in the southwestern limits of the United States.

The Sparrow Hawk, excepting alone the Red-shouldered Hawk, is, perhaps, the most numerous of the hawk family (at least so in Ohio). It is also perhaps the best known of our hawks and is quite beneficial. While grasshoppers may be secured very little else is eaten, but when they are gone a general diet of mice, snakes, small birds, etc., is taken up.

Audobon's Caracara is a southern species of little economic importance. It is a carrion eater.

The United States has but one osprey, the American Osprey. This is a widely-distributed North American bird, feeding entirely on fish and nesting near its hunting ground. They are protected by fisherman and have but little fear of man. They add more material to the nest each year so that it often becomes four or five feet in diameter and quite tall.

In conclusion; probably no other class of birds is so widely misunderstood and so persistently persecuted as is the hawk family. Thousands of dollars have been paid over as bounty for their ruthless destruction, but man is gradually coming to see the hawk as his friend and is beginning to try to protect him. Hawks are slow to increase in numbers, however, owing to the few young brought up at a time and also to the trait of bringing up but one family a year.

The Department of Agriculture after extended observations and investigations, recognize but six positively harmful hawks in the United States: the Sharp-shinned Hawk, Cooper's Hawk, the Goshawk, the Duck Hawk, the Gyrfalcons and the Fish Hawk. Only two of these are at all common in Ohio, the Sharp-shinned and Cooper's Hawk, and it seems to us that great care should be exercised in dealing with hawks; the end to be gained is certainly worthy our serious consideration.

O. E. JENNINGS.

A Preliminary List of the Edible Fungi of Ohio.

A much larger proportion of the species of Fungi are edible than is generally supposed; while many of them have a very high nutritive value. In many countries they form a very important article of food; but in this country, because of occasional and fatal accidents which have occurred, they are viewed with suspicion.

None of the supposed popular tests, with silver spoons, onions, etc., are at all certain; and those persons collecting mushrooms should confine themselves to those species which they know, or to those groups which contain no poisonous forms; as, *Morchella*, *Clavaria*, or *Lycoperdaceæ*.

The list contains all species so far reported for our State. The majority of them were originally reported by A. P. Morgan in his *Mycological Flora of Miami Valley*, published in the *Journal of the Cincinnati Society of Natural History*. The lists of C. G. Lloyd were also consulted, as well as the *Catalogue of Ohio Plants*, by Kellerman and Werner.

Contributions from all sections of the State are solicited; the specimens donated will be placed in the Ohio State Herbarium. Some specimens may be pressed and dried, but the majority must be preserved in 70 per cent. alcohol. The fresh specimens sent to the Botanical Department, O. S. U., will be properly classified and credited to the donors.

The author is undertaking a study of the edible fungi of our State under the direction of the Professors of Botany in the Ohio State University, and respectfully solicits material for inspection.

The classification and nomenclature given in *Die natürlichen Pflanzenfamilien*, by Engler and Prantl, is followed in this preliminary catalogue:

Class—ASCOMYCETES.

Order—HELVELLINEÆ.

Family—GLEOGLOSSACEÆ.

Genus—*Leotia*.

1. *Leotia lubrica* (Scop.) Persoon.

Family—HELVELLACEÆ.

Genus—*Morchella*. No poisonous species.

2. *Morchella conica* Persoon.

3. *Morchella esculenta* (L.) Persoon.

Morel.

4. *Morchella hybrida* (Sowerly) Persoon.
(*Morchella semilibra* D. C.)
Genus—*Gyromitra*.
5. *Gyromitra brunnea* Underwood.
6. *Gyromitra esculenta* (Persoon) Fries.
7. *Gyromitra gigas* (Krombholz) Cooke.
Order—PEZIZINEÆ.
Family—PEZIZACEAE.
Genus—*Peziza*.
8. *Peziza aurantia* Mull.
9. *Peziza badia* Persoon.
10. *Peziza cochleata* L.
11. *Peziza reticulata*.
12. *Peziza vesiculosa* Bull.
- Class—BASIDIOMYCETES.
Order—PROTOBASIDOMYCETES.
Family—AURICULARIACEAE.
Genus—*Auricularia*.
13. *Auricularia auricula*—Judæ (L.) Schröt.
(*Hirneola auricula*—Judæ L.)
Judas'-ear.
Family—TREMELLINACEAE.
Genus—*Tremella*.
14. *Tremella lutes cens* Pers.
- 14½. *Tremella mesenterica* Retz.
Order—HYMENOMYCETES.
Family—THELEPHORACEAE.
Genus—*Craterellus*.
15. *Craterellus cornucopiodes* (L.) Persoon.
Family—CLAVARIACEAE.
Genus—*Clavaria*.
16. *Clavaria aurea* Schæff.
17. *Clavaria botrytis* Persoon.
18. *Clavaria cristata* (Holmsk.) Persoon.
19. *Clavaria flava* Schæff.
20. *Clavaria formosa* Persoon.
21. *Clavaria muscoides* L.
22. *Clavaria pistillaris* L.
23. *Clavaria pyxidata* Persoon.
24. *Clavaria rugosa* Bull.
25. *Clavaria subtilis* Persoon.
26. *Clavaria vermicularis* Scop.
Family—HYDNACEAE.
Genus—*Hydnum*.
27. *Hydnum caput-medusæ* Bull.
28. *Hydnum coralloides* Scop.
29. *Hydnum erinaceus* Bull.
30. *Hydnum repandum* L.
Hedgehog, or Spine Mushroom.
31. *Hydnum zonatum* Batsch.
Family—POLYPORACEAE.
- Genus—*Polyporus*.
32. *Polyporus berkleyi* Fries.
33. *Polyporus caudicinus* (Schæff.) Schröt.
(*Polyporus sulphureus* Fr.)
34. *Polyporus giganteus* (Pers.) Fries.
35. *Polyporus glomeratus* Peck.
36. *Polyporus leucomelas* (Pers.) Fries.
37. *Polyporus ovinus* (Schæff.) Fries.
38. *Polyporus picipes* Fries.
39. *Polyporus squamosus* (Huds.) Fries.
- Genus *Boletus* contains some very deleterious species.
40. *Boletus bulbosus* Schæff.
(*Boletus edulis* Bull.)
The Edible Pore Mushroom.
41. *Boletus castaneus* Bull.
42. *Boletus chrysenteron* Fries.
43. *Boletus scaber* Bull.
44. *Boletus subtomentosus* Fries.
**Boletus felleus*. Bull.
Bitter tube mushroom.
Boletus piperatus. Bull.
Fiery tube mushroom.
Genus—*Strobilomyces*.
45. *Strobilomyces strobilaceus* (Scop.) Berk.
(*Boletus strobilaceus* Scop.)
Family—AGARICACEAE.
Genus—*Cantharellus*.
46. *Cantharellus cibarius* Fries.
**Cantharellus aurantiacus* (Wulf.) Fries.
Genus—*Coprinus*.
47. *Coprinus atramentarius* (Bull.) Fries.
Inky *Coprinus*.
48. *Coprinus micaceus* (Bull.) Fries.
Glistening *Coprinus*.
49. *Coprinus porcellaneus* (Schæff.) Schröt.
(*Coprinus comatus*—Fries.)
Maned Agaric, or Shaggy *Coprinus*.
Genus—*Hygrophorus*.
50. *Hygrophorus eburneus* Quél.
**Hygrophorus conicus* (Scop.) Fries.
Red Juice Mushroom.
Genus—*Lactaria*.
51. *Lactaria deliciosa* (L.) Schröt.
Orange Milk Mushroom.
52. *Lactaria piperata* (Scop.) Schröt.
Fiery Milk Mushroom.
53. *Lactaria subdulcis* (Bull.) Schröt.
54. *Lactaria vellerea* (Fries.) Schröt.
55. *Lactaria volema* (Fries.) Schröt.
Genus—*Russula*.

56. *Russula livida* (Pers.) Schröt.
(*Russula heterophylla*-Fries.)
Variable Mushroom.
57. *Russula lepida* Fries.
58. *Russula virescens* (Schæff.) Fries.
Genus—*Lentinus*.
59. *Lentinus conchatus* (Bull.) Schröt.
(*Panus conchatus* Fries.)
60. *Lentinus stipticus* (Bull.) Schröt.
(*Panus stipticus* Fr.)
Genus—*Marasmius*.
61. *Marasmius caryophyllus* (Schæff.) Schröt.
(*Marasmius oreades* (Bolt.) Fr.)
Fairy Ring.
62. *Marasmius peronatus* (Bolt.) Fries.
Hairy Foot.
Genus—*Hyphloma*.
63. *Hyphloma appendiculatum* (Bull.) Karst.
64. *Hyphloma sublateralitium* Schæff.
Genus—*Psalliota*.
(*Agaricus*.)
65. *Psalliota arvensis* (Schæff.) Fr.
Snow-Ball, or Horse Mushroom.
66. *Psalliota campestris* (L.) Fr.
Common, Meadow, or Field Mushroom.
67. *Psalliota fabaceus* Berk.
68. *Psalliota silvatica* (Schæff.) Fr.
69. *Psalliota silvicola* Vitt.
Genus—*Cortinarius*.
70. *Cortinarius cærulescens*. Fr.
71. *Cortinarius turmalis*. Fr.
72. *Cortinarius violaceus* (L.) Fr.
Genus—*Naucoria*.
73. *Naucoria semiorbicularis*. Bull.
Genus—*Pholiota*.
74. *Pholiota candicans* (Schæff.) Schröt.
(*Pholiota præcox* (Fr.) Quél.)
75. *Pholiota mutabilis* (Schæff.) Quél.
**Pholiota squarrosoides*. Peck.
Genus—*Hyporhodium*.
76. *Hyporhodium abortivus* (B. & C.) Henn.
(*Clitopilus abortivus* B. & C.)
Genus—*Volvaria*.
77. *Volvaria bombycina* (Schæff.) Quél.
Genus—*Agaricus*.
(*Pleurotus*.)
78. *Agaricus petaloides*. Bull.
79. *Agaricus sapidus*. Kalchbr.
80. *Agaricus ulmarius*. Bull.
Elm *Pleurotus*.
(*Collybia*.)
81. *Agaricus platyphylla*. Fr.
82. *Agaricus radicans*. Relh.
83. *Agaricus velutipes*. Curt.
(*Clitocybe*.)
84. *Agaricus cyathiformis*. Bull.
85. *Agaricus dealbatus*. Sow.
86. *Agaricus illudens*. Schw.
87. *Agaricus infundibuliformis*. Schæff.
88. *Agaricus laccatus*. Scop.
89. *Agaricus monadelphus*. Morgan.
90. *Agaricus nebularius*. Batsch.
(*Tricholma*.)
91. *Agaricus bicolor* Pers.
(*Agaricus personatus*. Fr.)
92. *Agaricus terreus*. Schæff.
Genus—*Armillaria*.
93. *Armillaria mella* (Vahl.) Quél.
Honey-colored mushroom.
Genus—*Lepiota*.
94. *Lepiota americana*. Peck.
95. *Lepiota cepæstipes* (Sow.) Quél.
96. *Lepiota farinosus*. Peck.
97. *Lepiota meleagris* (Sow.) Quél.
98. *Lepiota morgani*. Peck.
99. *Lepiota naucina* (Fr.) Sacc.
"Short-stemmed parasol."
100. *Lepiota procera* (Scop.) Quél.
Parasol Mushroom.
101. *Lepiota rhacodes* Vitt.) Quél.
102. *Lepiota rubro-tincta*. Peck.
103. *Lepiota umbonata* (Schwein.) Schröt.
(*Lepiota mastoidea*. Fr.)
Genus—*Amanitopsis*.
104. *Amanitopsis plumbea* (Schæff.) Schröt.
(*Amanitopsis vaginata* (Bull.) Roze.
Genus—*Amanita*. Many poisonous species.
105. *Amanita cæsaræa* (Scop.) Pers.
106. *Amanita pustulata* (Schæff.) Schröt.
(*Amanita rubescens* Pers.)
The Orange Mushroom.
- **Amanita muscaria* (L.) Pers.
- **Amanita umbrina* (Pers.) Schröt.
- (*Amanita pantherina* (D. C.) Quél.
- **Amanita verna*. Fries.
The Destroying Angel.
- Order—*ASTEROMYCETES*.
Family—*LYCOPERDACEÆ*. No
poisonous species known.
Genus—*Lycoperdon*.
(*Calvatia*.)
107. *Lycoperdon craniformis*. Schweinitz.
108. *Lycoperdon cyathiformis*. Bosc.
(*Eu-Lycoperdon*.)
109. *Lycoperdon gemmatum*. Batsch.
110. *Lycoperdon Wrightii* B. & C.
Genus—*Globaria*.
111. *Globaria bovista* (L.) Quél.

(*Lycoperdon giganteum* Batsch; *Bovista giganteum* Nees; *Calvatia maxima* Schæff.)

Giant Puff-Ball.

Genus—*Bovista*.

112. *Bovista pila* B. & C.

113. *Bovista plumbea*. Pers.

114. *Bovista nigrescens*. Pers.

Family—*SCLERODERMACEAE*.

Genus—*Scleroderma*.

**Scleroderma vulgare* Hornemann.

Family—*PHALLACEAE*.

Genus—*Ithyphallus*.

**Ithyphallus impudicus* (L.) Fries.

(*Phallus impudicus*. L.)

Wood Witch, or Stink Horn.

*Poisonous.

ELMA BROOKS PERRY.

Pure Seed For Farmers.

The first requisite of success in farming is the use of good seed. In these days of close competition the farmer, like every other class, is coming to realize the necessity of eliminating every source of waste connected with his business. He is coming to understand that if he is to maintain profits or increase them he must employ the same strict vigilance and business-like methods exercised by his brother, the champion of industry, in the city. The latest machines are obtained and modern methods are introduced to minimize the wear and tear and economize time and energy. But among us, as an agricultural class, one factor whose true value we have not come to fully realize is that of making every effort to secure pure and germinable seeds.

For the past few years there has been a constantly increasing outcry against unscrupulous dealers who sought to sell poor seed, and in a few States there have been legislative enactments to protect the farmer.

The prevailing tendency is to buy cheap seed, little realizing that they are in reality the most expensive when their content of weed seed and other impurities are taken into consideration. The U. S. Department of Agriculture has

recently published a bulletin relating to this subject, and it should find its way into the hands of every farmer and dealer in seeds. In this, attention is drawn to the great injury wrought by the introduction of weed seed and the work and expense incurred to be freed of them. Very many of our obnoxious weeds have come to us through our cereal seeds. The purity of the larger grains, as corn, may easily be determined, but with the large majority of the grasses the problem is an entirely different one. The writer recalls an experience with millet seed that contained the seed of two very troublesome western weeds of the nightshade family. In this instance the expense of eradicating them from the farm was far greater than would have been the purchase of pure seed at the outset.

While impurity of seed is to be reckoned with, there is still another factor scarcely less to be guarded against. This is dead seed. The study of the vitality of seed has been the subject of a large amount of investigation, revealing many valuable points. In this particular seeds vary greatly and no general rule can be laid down except to secure fresh supplies.

The trouble may be in the age or in the treatment, but in either instance the loss is the same. The bulletin to which reference was made above contains several very interesting seed analyses. Samples of Redtop selling on the market for \$5.00, \$1.10 and 75 cents per bushel respectively were found to contain the following per cent. of good seed: 77.4, 10.48, and 16.76. Thus the actual price per pound was not 13.7, 8.54, and 5.37 cents, but 17.7, 81.3, and 30.7 cents. Again, samples of Kentucky Blue-grass selling for .14, 10.23, 10, and .06.25 cents per pound were in reality costing their purchasers \$0.23, \$1.75, \$2.18, and \$0.24 per pound of pure seed. Timothy presents less opportunity for adulteration, but is not always to be depended upon.

The advance in the price of clover seed, especially red clover, and the great variety of impurities which it may contain as well as the great dependence placed on it by farmers, require that especial attention should be called to it. The points of quality to be considered are its cleanness, the percentage of germinable seed, the vigor of germination, and the origin of the seed. Obviously all these factors are of prime importance in securing a stand, for the amount of seed sown per acre, not only of this but of all crops, depends on the size of the seed and its quality. Hence a fifty per cent. seed would give but half a stand if the general rate of seeding were followed. The most common impurities present in red clover seed are dodder, yellow trefoil, broad-leaved plantain and buckthorn, and the resemblance is very close.

The natural question for the farmer to ask is how to protect himself against all these impositions. The answers to this are four in number. Buy from reliable seedmen; avoid cheap grades; demand a statement of quality in percentage, and test the seed.

Very often the seedmen know as little of the character of their seed as their patrons. They may be in ignorance of the true character of the seed offered, or of its germinability. However, a reliable firm who exercise care in its selections is much to be preferred to the commission man or petty retail dealer.

Again, it is evident that good seed must be paid for liberally. Great care must be exercised in its selection, cleaning and treatment, as there are so many vitiating factors. A guaranteed statement of quality in percentage gives us, in short, what is wanted. It should show the per cent of germinable seed, of foreign seed and of other impurities, and all this the farmer, as the party most concerned, has a right to demand. The truth of the guarantee may be verified

by his own tests, and these are very easily and cheaply made. Moisten a flannel cloth and place a definite number of seeds between its folds and place it in a common dinner plate with a second one inverted over it and set in a warm place. The number of seeds germinating from day to day should be recorded and the test continued for ten to fifteen days, depending on the seed. By this a comprehensive knowledge will be gained and the farmer may then proceed on a rational basis. He has just as much right to demand good seeds as good fertilizers, and is just as much entitled to protection. However, not until he registers his complaint against the impositions practiced upon him can he expect, or should he expect, relief. E. O. F.

Book Reviews.

"Principles of Biology," vol. II; by Herbert Spencer. Cloth, pp. 620. The D. Appleton Co., New York. Price, \$2.00.

This is a substantially bound volume of 620 pages, the whole being minutely indexed. It contains about 250 illustrations of both figures and diagrams most of which are original with the author. This edition is a revision of the same work, published by the noted biologists in 1864-67. The intellectual weight of the first edition has been greatly augmented, and corrections and additions have for the most part been relegated to notes and appendices. The volume is divided into three parts, one on Morphological Development, another on Physiological Development and the third on the Laws of Multiplication. At the end of these three is an appendix covering 85 pages, which contains the more mature and unbiased views of the scholar and thinker, who is now nearly eighty years of age. The book is of incalculable value to botanists and zoologists, and readily commends itself to the reader of popular science.

"The Study of Breeds," by Thomas Shaw, Professor of Animal Husbandry at the University of Minnesota. Cloth, pp. 371. The Orange Judd Company, New York. Price, \$1.50.

Professor Shaw is known throughout the country as an authority upon animal husbandry; and this book from his pen will fill a long felt want. This book, for the first time, the historical truths relating to the study of breeds as such, have been collected and systematized in a form easily accessible to the student. All the pedigreed breeds of cattle, sheep and swine at present existing in America are discussed in a brief and concise manner.

The origin, history, classification and improvement of each class is discussed, followed by a similar discussion for each breed and each special type of animals. The leading characteristics of each breed, together with their principal points, as set forth in the herd books, makes it easy to compare the points of similarity and dissimilarity in the different breeds. Over fifty full page illustrations are given of typical animals of each breed. Every student, farmer and breeder of America will have a copy of this book in his library.

Bulletins Received.

U. S. Department of Agriculture.

"Co-operative Experiments with Grasses and Forage Plants," Bulletin No. 22, Division of Agrostology. The bulletin is a report of the work done by this department in introducing into cultivation native and foreign varieties of grasses and forage plants, that are suitable for certain purposes or conditions. Seed is distributed by the Department to volunteer experimenters, experiment stations, botanical gardens, and universities, and foreign countries.

Trials of new grasses and forage plants are necessary that ranchers and farmers in all parts of the country may determine

their suitability each for his own district. After selection of the promising varieties has been made they can be grown on a large scale and finally adopted without the useless expenditure of money, labor and time, often attending attempts to introduce new plants.

"Dietary Studies of University Boat-Crews," Bulletin No. 75, Office of Experiment Stations.

The study of the relations of muscular activity to metabolism of matter and energy has been taken only recently by this Department in connection with the Connecticut Station and Wesleyan University. Seven dietary studies are reported, two of each team, and result in the conclusion that the diet for men from whom intense muscular effort is required should supply liberal amounts of energy and especially large amounts of protein.

"The Cotton Crop of 1898-99," Bulletin No. 17, Division of Statistics.

This bulletin shows the cotton crop to have been as follows: Upland cotton, 11,121,414 bales, valued at \$301,872.796. Sea-island cotton, 67,791 bales, valued at \$305,467,041.

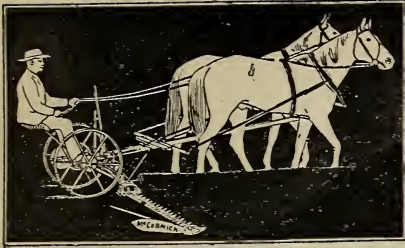
"The Farmers' Interest in Good Seed," Farmers' Bulletin No. 111. Here are reported the results of investigations along this line, resulting in the conclusions that in seeds as ordinarily bought and sold there is a very large per cent. of useless material, and also a large per cent. of material actually injurious. Cornell University Experiment Station.

"Pollination in Orchards." The Bulletin is divided into two parts:

I. Incidental or occasional causes for loss of fruit.

II. Self-sterility, which is the main part of the work. The various reasons why flowers do not set are fully discussed. It is shown that some varieties are inclined to be self-sterile, which can be, in great measure, remedied by planting different varieties among them. Experiments with a large number of varieties are reported.

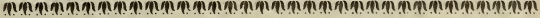
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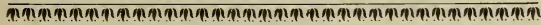
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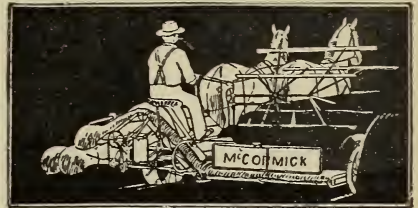
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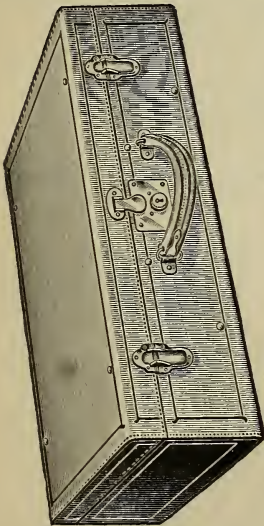
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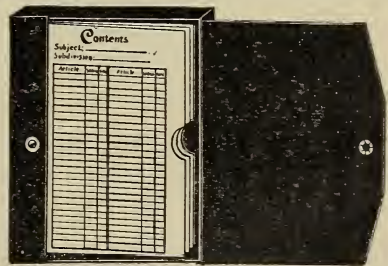
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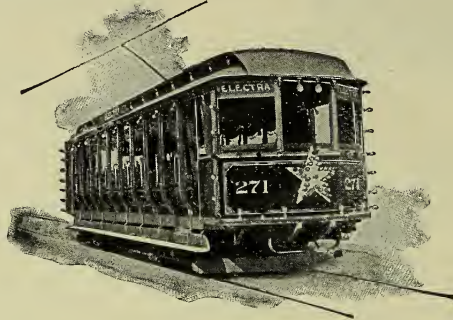
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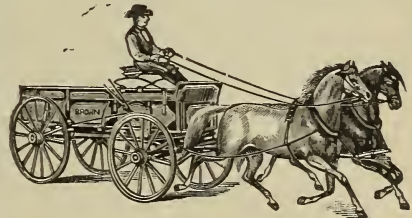
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The Tongue Chains have Coil Springs in them—
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Seat Hooks locate themselves—can't get out of
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can't come off.

Machine Boxed Wheels—must be true.

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Have Extension Shoe Skein which fully protects
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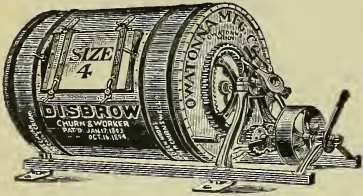
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The Original Combined Churn and Butter Worker

Churns and works the butter on the only true principle. Brings the butter to the working rollers no faster than the rollers can take care of it without rubbing the butter. No solid BALL of butter comes in contact with the rolls to be scraped to pieces by the rolls and made salvy. It is the only combined machine in which butter has been made that scored 100 points.

The manufacturers have never made any claims for it that were not fully proven by actual tests of the machine.

The Disbrow tells its own story and a fair trial is all that is needed to prove its merits.

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Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

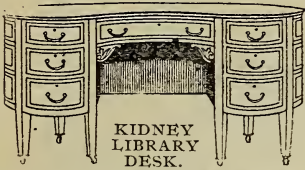
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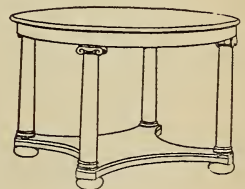
Quaint, roomy, very convenient, and has all the appearance of a made-to-order piece of furniture.

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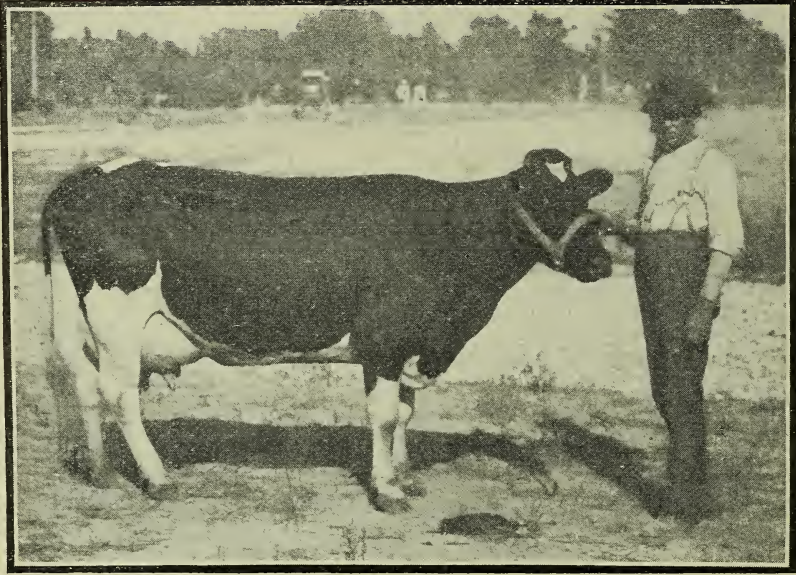
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QUALITY
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HEALTH
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ANNUAL No. 33960 H. F. H. B.

ANNUAL was one of our show cows at the fair, and was Grand Champion cow of the milk breeds.

She won first in milk test in **HOLSTEINS** for butter fats in twenty-four hours, giving sixty pounds fifteen ounces milk at two milkings; per cent. butter fat, .043, making 2 62 pounds butter fat.

That was higher than any other cow on the grounds and entitled her to Championship Honors.

She was first in class show of **HOLSTEINS** and was best cow in the dairy breeds open to all.

So she won two first prizes in class, and two first prizes in Champion Sweepstakes, more than any other cow ever won on the **OHIO STATE FAIR GROUND**.

We won every prize in the milk test open for us.

We had tested twenty-seven cows for **STATE FAIR**; there was one yearling, four 2-year olds, five 3-year olds—the whole averaging 1.90 pounds of butter fats in twenty-four hours. Leaving out the yearling and three 2-year olds, the remainder averaged over two pounds butter fats in twenty-four hours, or 2.33 pounds butter.

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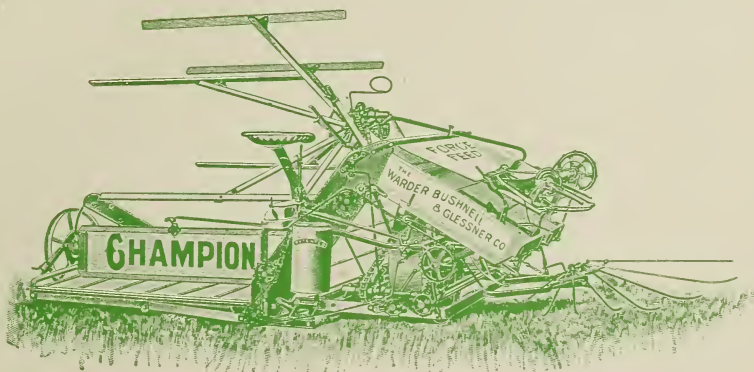
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THE dairyman-farmers using Gluten Feed tell us
 the extra flow of milk nearly pays for the
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 do not fail to give this wonderful milk-producing
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Department "X."

Another "Alpha" Triumph.

Royal Agricultural Society First Prizes.

The "Alpha" De Laval machines have just won another great victory over would-be competitive cream separators, in the practical working contest at the 1899 Annual Show, at Maidstone, Kent, of the Royal Agricultural Society of England.

This Society is probably the most important agricultural body in the world, and its Annual Shows are the largest and most important of agricultural exhibitions and contests held anywhere. The Society has conducted no cream separator contest since 1891, at which time the "Alpha" disc machine first demonstrated their great superiority over the "hollow-bowl" type of separator construction, so that the contest to be held this year has attracted a great deal of attention everywhere with those interested in dairying matters, and especially among separator manufacturers. Different manufacturers, from various countries, sent not only their own special engineers to superintend the running of their respective machines, but in some instances the inventors or chief constructors themselves.

The Royal Agricultural Show test of separators is by all odds the most thorough and complete attempted by any society or institution anywhere, the work differing in some respects from that of the Experiment Stations in that it is devised and conducted along the lines of practical operation, without regard to mere experimental possibilities. The test covered five days continuous running, every feature entering into the economical cost and practical efficiency of a separator being carefully analyzed, the Association's consulting engineer acting in conjunction with the official judges. The "points" taken into consideration were:—Price, efficiency of separation, power taken per gallon, time taken per gallon, means of regulating thickness of cream, facility for dismantling and cleaning, mechanical construction, and freedom from froth, both from skim milk and cream.

The contest was divided into two classes of machines—Hand and Power. There were six entries of Power and nine of Hand machines. The First Prize was 20£ or \$100.00 in each class.

THE "ALPHA" DE LAVAL MACHINES EASILY WON FIRST PRIZE IN EACH CLASS, which while no more than anyone familiar with separators would naturally have expected, is nevertheless the highest endorsement any agricultural implement could possibly receive, and an endorsement of such character that its weight must be recognized in every part of the world.

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Convince Yourself!

DOES it ever occur to you that a practical demonstration of merit is worth more than the "tale of woe" which comes from a salesman with an "ax to grind." It is remarkable how wonderfully interested in the welfare of the creameryman (?) some wild-eyed competitors of the Tubular have become. Why are they so energetic in their efforts to prevent creamerymen from giving the Tubular a trial? Because they are trembling in their boots. Do they fear that the creameryman will be the loser? Oh, no! Because it is the last card they have to play and they know that when the Tubular is given a fair trial it gives satisfaction and proves itself in every way superior to their back-number machines. Some of these fellows have been weeping "crocodile tears" over Mr J. A. Chillqvist, of Nettle Creek, Illinois, but the following letter from this gentleman shows that it has paid him to use his own judgment rather than listen to false friends:

NETTLE CREEK, ILLINOIS, August 4, 1899.

THE SHARPLES CO., Chicago, Ill.:

Gentlemen Your letter of inquiry of a recent date was duly received and should have been answered sooner but from the fact that I wished to see fully what the Tubular would do. I have now fully decided after carefully testing the machine, and am prepared to say that it meets fully your recommendation, and even more, as it requires very little power to operate same, and the cream is equal, and I believe superior, to any separator that I have ever used. I have used separators for the last fifteen years, including nearly all makes. Danish Weston was the first, then De Laval and Sharples, and also Alpha, all of which I considered good, but now I say from experience that I regard the Tubular Separator as the leading machine. I was warned against using or buying this, as it was an experiment; it has proved to me the right kind of an experiment. What can we expect unless we look to advancement. I am skimming 2,500 pounds per hour, and this not to exceed .03 to .05, and have always found that my own judgment has served me better than the talk of competitors, agents of separators, or anything else. There are several Tubulars running near me and all are more than pleased with results from their machines.

Yours truly,

J. A. CHILLQVIST.



THE SHARPLES TUBULAR SEPARATOR

Represents the latest great advance in cream separator construction. More revolutions, less speed, more centrifugal force, less power, more perfect cream, less fat in skim milk, more durability and less complication.

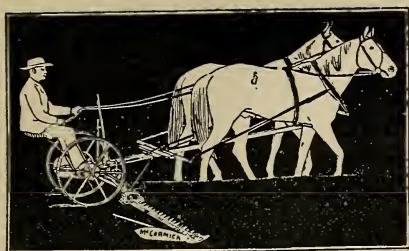
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✱ ✱ IT SPINS ON AIR! ✱ ✱

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Right Hand Open Elevator Binder.

McCORMICK

BINDERS AND MOWERS

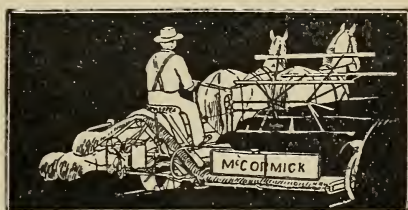
Stand in the Front Rank in all Contests

Easy to Operate,
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Light Draft, Most Durable,
BUY ONE AND GET
SATISFACTION. ✂ Work Perfect.

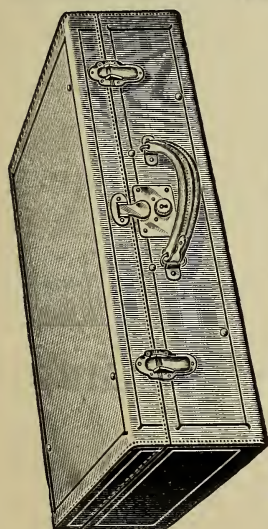
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The four highest scores were on butter, entered by:

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J. P. Whalen, Jerico, Iowa.....	" 98 ½
L. E. Camp, Elmoreville, Ill.....	" 98 ½

Eleven others scored 98 points, and fifteen scored 97 ½.

For further information, or quotations, write to our General Western Salesman, Mr. F. A. TRIPP, 34 Clark St., Chicago, or address us direct.

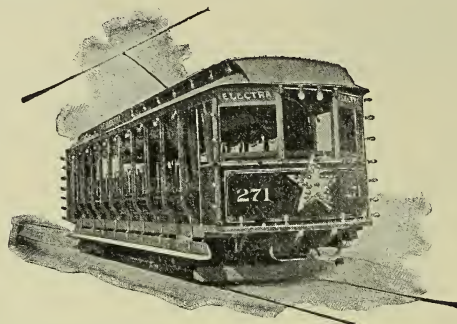
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CYLINDERS.

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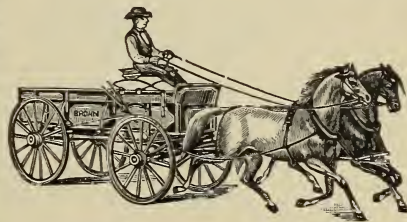
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THE BEST WAGON

For Every Variety of Use is the

"BROWN" WAGON



AND THESE ARE THE REASONS WHY:

The "BROWN" principles increase its
strength, durability and neat appearance.

We use Double Sliders for the coupling pole.

The Tongue Chains have Coil Springs in them—
makes them easy on the horse's neck.

Seat Hooks locate themselves—can't get out of
place, can't slip. Hot oil-boiled Wheels—tires
can't come off.

Machine Boxed Wheels—must be true.

Machine Fit Skeys—better than can be done by
hand.

Have Extension Shoe Skein which fully protects
axle—used only on THE "BROWN" WAGONS.

Branch Chains to tongue chains—can't whip
horse's legs.

Besides all this it is stamped "BROWN," which
is a guarantee of excellence and superiority.

All about styles and sizes in free circulars.

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❁ The Best French Coachers.

We were in France a month earlier than any other Americans, and bought the first choice of all the **LEADING FRENCH BREEDERS**.

We were at **THE GREAT ANNUAL SHOW OF FRANCE OF 1899**, and bought more **PRIZE WINNERS** at that show than all of our competitors combined.

We doubled the capacity of our stables this summer to accommodate our recent large importations, and can assure the public that we have more **Imported Percheron and French Coach Stallions** than can be found in any other breeding establishment in the world.

WE IMPORT MORE, SELL MORE, AND CAN THEREFORE
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**The Best Horses, the Largest Number of Horses, and the Lowest Prices,
are Three Reasons why Prospective Buyers Should
Visit Our Establishment.**

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That's
ALL Salt."**

Is a title denoting
unequaled purity.

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Has analyzed the leading dairy salts of all countries, and given the results in a
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is the only salt in the world above 99 per cent. pure.

OUR RIGHT TO USE THE TITLE MUST REMAIN UNCHALLENGED.

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Cleveland & Buffalo...	† 9:15am	† 12:40pm
Local to Crestline...	† 9:15am	† 12:40pm
N. Y. & Boston Ex...	* 11:40am	* 3:15pm
Cleveland & Buffalo...	* 11:40am	* 3:15pm
Delaware & Cleveland	† 4:15pm	† 9:10pm
Local to Cleveland...	† 4:15pm	† 9:10pm
Southwestern Limited	* 10:00pm	* 7:08am
New York & Boston...	* 10:00pm	* 7:08am
Buff. & Niagara Ex...	* 10:00pm	* 7:08am

(Cincinnati, South and West.)

Dayton & Cincinnati...	* 2:10am	* 1:30am
Louisville & Nashville	* 2:10am	* 1:30am
Southwestern Limited	* 7:15am	* 9:55pm
Dayton & Cincinnati...	* 7:15am	* 9:55pm
Ind'napolis & Chicago	* 7:15am	* 9:55pm
Dayton & Cincinnati...	† 8:45am	† 6:30pm
Local to Cincinnati...	† 8:45am	† 6:30pm
Dayton & Cincinnati...	† 12:45pm	† 4:05pm
London & Springfield.	† 12:45pm	† 4:05pm
Dayton & Cincinnati...	* 3:25pm	* 11:35am
Ind'napolis & St. L's...	* 3:25pm	* 11:35am
Louisville & Nashville	* 3:25pm	* 11:35am
Dayton & Cincinnati...	* 5:45pm	* 4:05pm
Springfield & Dayton.	* 5:45pm	* 9:40am

*Daily. †Daily except Sunday.

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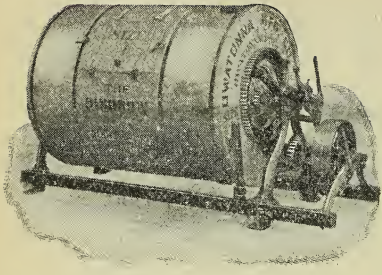


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*Are not troubled with Dust, Flies or Bad Odors in
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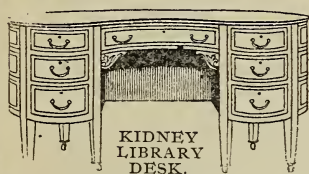
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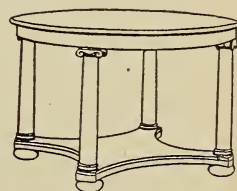
Quaint, roomy, very convenient, and has all the appearance of a made-to-order piece of furniture.

Our buyer has returned from the Furniture centers of the country, and it would be strange, indeed, if you could not find new ideas and new notions of decoration and arrangement. You are welcome to all our travels teach us.

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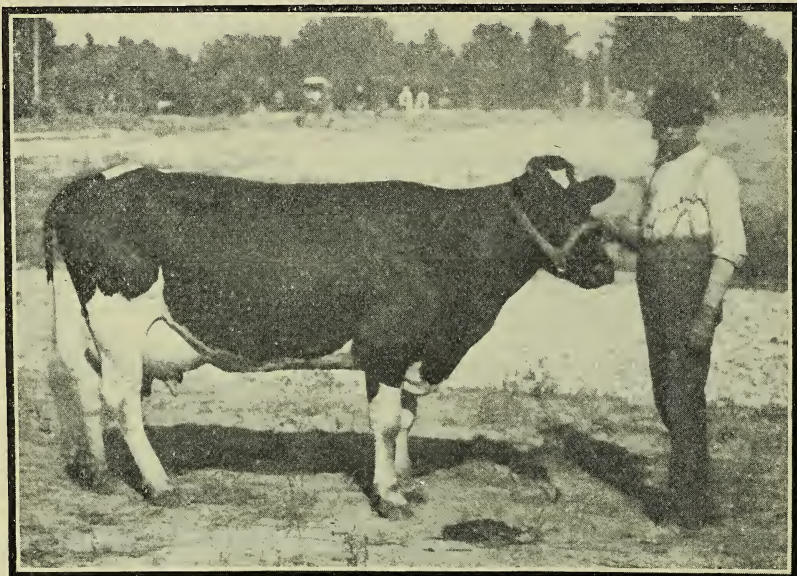
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Ohio's Famous Herd is Famous For...

QUALITY
AND
QUANTITY

HEALTH
AND
VIGOR

FORM
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ANNUAL No. 33960 H. F. H. B.

ANNUAL was one of our show cows at the fair, and was Grand Champion cow of the milk breeds.

She won first in milk test in HOLSTEINS for butter fats in twenty-four hours, giving sixty pounds fifteen ounces milk at two milkings; per cent. butter fat, .043, making 2.62 pounds butter fat.

That was higher than any other cow on the grounds and entitled her to Championship Honors.

She was first in class show of HOLSTEINS and was best cow in the dairy breeds open to all.

So she won two first prizes in class, and two first prizes in Champion Sweepstakes, more than any other cow ever won on the OHIO STATE FAIR GROUND.

We won every prize in the milk test open for us.

We had tested twenty-seven cows for STATE FAIR; there was one yearling, four 2-year olds, five 3-year olds—the whole averaging 1.90 pounds of butter fats in twenty-four hours. Leaving out the yearling and three 2-year olds, the remainder averaged over two pounds butter fats in twenty-four hours, or 2.33 pounds butter.

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Mowers, are made by
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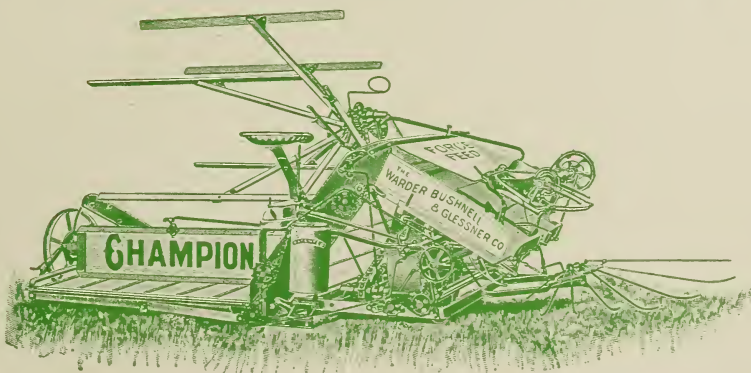
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THE dairyman-farmers using Gluten Feed tell us the extra flow of milk nearly pays for the entire cost of the feed. It also improves the quality of the milk and keeps your cows strong and healthy. The most successful dairymen in your section are using Gluten Feed, and in order to keep pace with them you should do likewise.

Gluten Feed contains 540 pounds milk-producing material per ton and is the cheapest feed on the market for the dairyman-farmer. Write us for further particulars about feeding dairy-cows, and do not fail to give this wonderful milk-producing feed a trial. Address:

THE GLUCOSE SUGAR REFINING CO.

THE ROOKERY,

CHICAGO, ILLINOIS.

Department "X."

Another "Alpha" Triumph.

Royal Agricultural Society First Prizes.

The "Alpha" De Laval machines have just won another great victory over would-be competitive cream separators, in the practical working contest at the 1899 Annual Show, at Maidstone, Kent, of the Royal Agricultural Society of England.

This Society is probably the most important agricultural body in the world, and its Annual Shows are the largest and most important of agricultural exhibitions and contests held anywhere. The Society has conducted no cream separator contest since 1891, at which time the "Alpha" disc machine first demonstrated their great superiority over the "hollow-bowl" type of separator construction, so that the contest to be held this year has attracted a great deal of attention everywhere with those interested in dairying matters, and especially among separator manufacturers. Different manufacturers, from various countries, sent not only their own special engineers to superintend the running of their respective machines, but in some instances the inventors or chief constructors themselves.

The Royal Agricultural Show test of separators is by all odds the most thorough and complete attempted by any society or institution anywhere, the work differing in some respects from that of the Experiment Stations in that it is devised and conducted along the lines of practical operation, without regard to mere experimental possibilities. The test covered five days continuous running, every feature entering into the economical cost and practical efficiency of a separator being carefully analyzed, the Association's consulting engineer acting in conjunction with the official judges. The "points" taken into consideration were:—Price, efficiency of separation, power taken per gallon, time taken per gallon, means of regulating thickness of cream, facility for dismantling and cleaning, mechanical construction, and freedom from froth, both from skim milk and cream.

The contest was divided into two classes of machines—Hand and Power. There were six entries of Power and nine of Hand machines. The First Prize was 20£ or \$100.00 in each class.

THE "ALPHA" DE LAVAL MACHINES EASILY WON FIRST PRIZE IN EACH CLASS, which while no more than anyone familiar with separators would naturally have expected, is nevertheless the highest endorsement any agricultural implement could possibly receive, and an endorsement of such character that its weight must be recognized in every part of the world.

The De Laval Separator Co.

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Convince Yourself!

DOES it ever occur to you that a practical demonstration of merit is worth more than the "tale of woe" which comes from a salesman with an "ax to grind." It is remarkable how wonderfully interested in the welfare of the creameryman (?) some wild-eyed competitors of the Tubular have become. Why are they so energetic in their efforts to prevent creamerymen from giving the Tubular a trial? Because they are trembling in their boots. Do they fear that the creameryman will be the loser? Oh, no! Because it is the last card they have to play and they know that when the Tubular is given a fair trial it gives satisfaction and proves itself in every way superior to their back-number machines. Some of these fellows have been weeping "crocodile tears" over Mr J. A. Chillqvist, of Nettle Creek, Illinois, but the following letter from this gentleman shows that it has paid him to use his own judgment rather than listen to false friends:

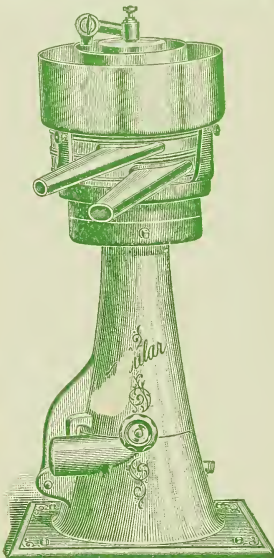
NETTLE CREEK, ILLINOIS, August 4, 1899.

THE SHARPLES CO., Chicago, Ill.:

Gentlemen Your letter of inquiry of a recent date was duly received and should have been answered sooner but from the fact that I wished to see fully what the Tubular would do. I have now fully decided after carefully testing the machine, and am prepared to say that it meets fully your recommendation, and even more, as it requires very little power to operate same, and the cream is equal, and I believe superior, to any separator that I have ever used. I have used separators for the last fifteen years, including nearly all makes. Danish Weston was the first, then De Laval and Sharples, and also Alpha, all of which I considered good, but now I say from experience that I regard the Tubular Separator as the leading machine. I was warned against using or buying this, as it was an experiment; it has proved to me the right kind of an experiment. What can we expect unless we look to advancement. I am skimming 2,500 pounds per hour, and this not to exceed .03 to .05, and have always found that my own judgment has served me better than the talk of competitors, agents of separators, or anything else. There are several Tubulars running near me and all are more than pleased with results from their machines.

Yours truly,

J. A. CHILLQVIST.



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Represents the latest great advance in cream separator construction. More revolutions, less speed, more centrifugal force, less power, more perfect cream, less fat in skim milk, more durability and less complication.

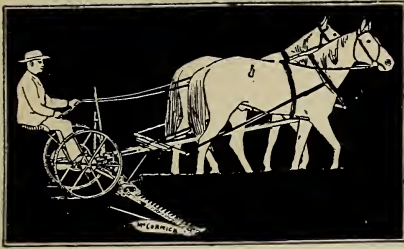
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✱ ✱ IT SPINS ON AIR! ✱ ✱

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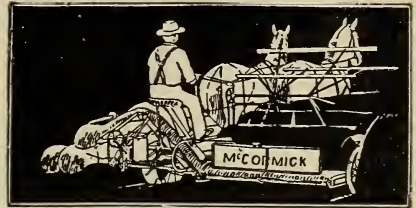
Easy to Operate,
Convenient to Handle,
Light Draft, Most Durable,
Work Perfect.

BUY ONE AND GET
SATISFACTION. ❀❀

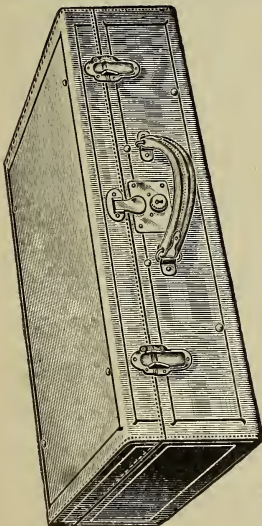
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There were 172 entries, and of these 142 scored as "Extras."

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W. I. Noyes, Moland, Minn.....	" 98½
J. P. Whalen, Jerico, Iowa.....	" 98½
L. E. Camp, Elmo, Ill.....	" 98½

Eleven others scored 98 points, and fifteen scored 97½.

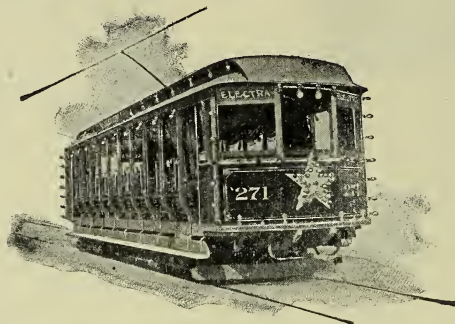
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The Genesee Salt Company,

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TRANSFERS TO ALL PARTS OF THE CITY.



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	Children, three months	4.00

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AND FULL LINE OF
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❀ ❀ All Sizes. ❀ ❀

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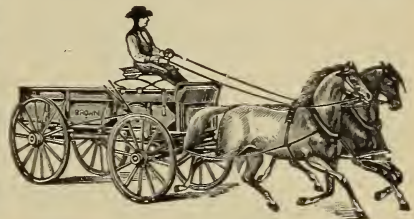
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For Every Variety of Use is the

"BROWN" WAGON



AND THESE ARE THE REASONS WHY:

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Seat Hooks locate themselves—can't get out of place, can't slip. Hot oil-boiled Wheels—tires can't come off.

Machine Boxed Wheels—must be true.

Machine Fit Skeins—better than can be done by hand.

Have Extension Shoe Skein which fully protects axle—used only on THE "BROWN" WAGONS.

Branch Chains to tongue chains—can't whip horse's legs.

Besides all this it is stamped "BROWN," which is a guarantee of excellence and superiority.

All about styles and sizes in free circulars.

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Doors, Sash, Blinds,

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Cor. Spring and Water Sts. COLUMBUS, O.

....Telephone No. 279....

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❀ The Best French Coachers.

We were in France a month earlier than any other Americans, and bought the first choice of all the **LEADING FRENCH BREEDERS**.

We were at **THE GREAT ANNUAL SHOW OF FRANCE OF 1899**, and bought more **PRIZE WINNERS** at that show than all of our competitors combined.

We doubled the capacity of our stables this summer to accommodate our recent large importations, and can assure the public that we have more **Imported Percheron and French Coach Stallions** than can be found in any other breeding establishment in the world.

WE IMPORT MORE, SELL MORE, AND CAN THEREFORE
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**The Best Horses, the Largest Number of Horses, and the Lowest Prices,
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Visit Our Establishment.**

McLAUGHLIN BROS.

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That’s
ALL Salt.”**

Is a title denoting
unequaled purity.

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Has analyzed the leading dairy salts of all countries, and given the results in a
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OUR RIGHT TO USE THE TITLE MUST REMAIN UNCHALLENGED.

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for the Past Three Years.

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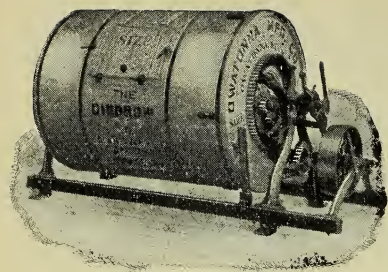


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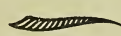
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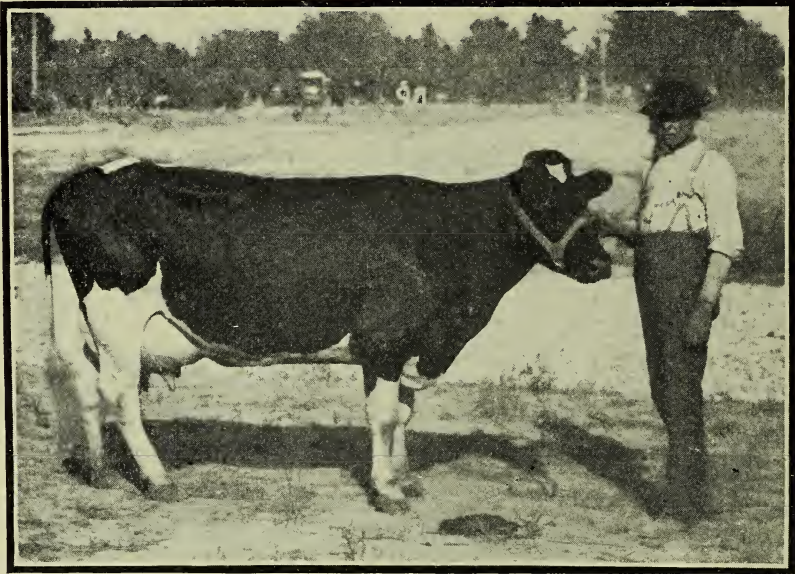
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QUALITY
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ANNUAL No. 33960 H. F. H. B.

ANNUAL was one of our show cows at the fair, and was Grand Champion cow of the milk breeds.

She won first in milk test in **HOLSTEINS** for butter fats in twenty-four hours, giving sixty pounds fifteen ounces milk at two milkings; per cent. butter fat, .043, making 2 62 pounds butter fat.

That was higher than any other cow on the grounds and entitled her to Championship Honors.

She was first in class show of **HOLSTEINS** and was best cow in the dairy breeds open to all.

So she won two first prizes in class, and two first prizes in Champion Sweepstakes, more than any other cow ever won on the **OHIO STATE FAIR GROUND**.

We won every prize in the milk test open for us.

We had tested twenty-seven cows for **STATE FAIR**; there was one yearling, four 2-year olds, five 3-year olds—the whole averaging 1.90 pounds of butter fats in twenty-four hours. Leaving out the yearling and three 2-year olds, the remainder averaged over two pounds butter fats in twenty-four hours, or 2.33 pounds butter.

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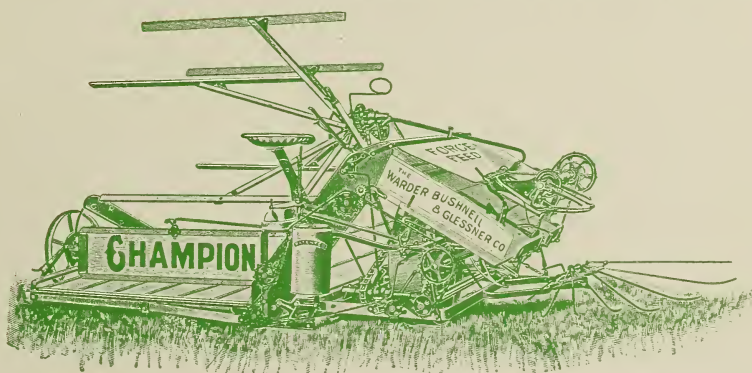
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Department "X."

Another "Alpha" Triumph.

Royal Agricultural Society First Prizes.

The "Alpha" De Laval machines have just won another great victory over would-be competitive cream separators, in the practical working contest at the 1899 Annual Show, at Maidstone, Kent, of the Royal Agricultural Society of England.

This Society is probably the most important agricultural body in the world, and its Annual Shows are the largest and most important of agricultural exhibitions and contests held anywhere. The Society has conducted no cream separator contest since 1891, at which time the "Alpha" disc machine first demonstrated their great superiority over the "hollow-bowl" type of separator construction, so that the contest to be held this year has attracted a great deal of attention everywhere with those interested in dairying matters, and especially among separator manufacturers. Different manufacturers, from various countries, sent not only their own special engineers to superintend the running of their respective machines, but in some instances the inventors or chief constructors themselves.

The Royal Agricultural Show test of separators is by all odds the most thorough and complete attempted by any society or institution anywhere, the work differing in some respects from that of the Experiment Stations in that it is devised and conducted along the lines of practical operation, without regard to mere experimental possibilities. The test covered five days continuous running, every feature entering into the economical cost and practical efficiency of a separator being carefully analyzed, the Association's consulting engineer acting in conjunction with the official judges. The "points" taken into consideration were:—Price, efficiency of separation, power taken per gallon, time taken per gallon, means of regulating thickness of cream, facility for dismantling and cleaning, mechanical construction, and freedom from froth, both from skim milk and cream.

The contest was divided into two classes of machines—Hand and Power. Their were six entries of Power and nine of Hand machines. The First Prize was 20£ or \$100.00 in each class.

THE "ALPHA" DE LAVAL MACHINES EASILY WON FIRST PRIZE IN EACH CLASS, which while no more than anyone familiar with separators would naturally have expected, is nevertheless the highest endorsement any agricultural implement could possibly receive, and an endorsement of such character that its weight must be recognized in every part of the world.

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I FIND THAT THE TUBULARS ARE THE "BOYS" THAT CAN DO IT, NOT ONLY IN TEST BUT IN THE CONDITION IT LEAVES THE CREAM IN.

This is the incontrovertible evidence of a practical creamery man of large experience as is evidenced by his letter given in full below. Like many other creamerymen he bought a large amount of expensive experience before he "got right." Our object in publishing this experience is to warn others against such mistakes. Start right and be right for all time by buying the unequaled, economic and absolutely safe _____

Sharples Tubular Separators.

THE SHARPLES CO., Chicago, Ill.:

BRISTOL, ILLINOIS, Aug 18, 1899.

Gentlemen—By request of your representative, Mr. S. F. Greene, I will give a synopsis of my experience in creamery work.

In the spring of '95 I purchased a hand separator (De Laval) and twenty gallon churn, for my use in a little dairy of thirty-three cows. On the morning of July 5th, my first patron delivered seventy-five pounds of milk, which I tallied on the wall, that being my weigh sheet for several weeks. My neighbors commenced coming with their milk and the handles were soon displaced with wooden pulleys, and a tread power installed to drive the machinery.

In December, '96, all of this machinery was thrown out and replaced with a steam engine, 150 gallon churn and an Acme separator. On the following June all of this machinery was again displaced by larger, as my old outfit was inadequate to handle the milk received, which was 4,000 pounds daily and steadily increasing.

My present factory is equipped with two boilers 90-H. P. capacity, 25-H. P. engine, Ice Plant, No. 7 Barber Combined Churn and Butter Worker, two Sharples Tubular Separators, Skim Milk Weigher, and a complete condensing outfit, and my daily run will average from ten to sixteen thousand pounds of milk.

In closing allow me to say a word for the Tubulars. I have always used Alphas and thought they could not be beaten, but by actual experience I find that the Tubulars are the "boys" that can do it, not only in test but in the condition it leaves the cream. They are very simple and easy to manage, requiring very little oil and steam to run them, and their average tests are from two to five one-hundredths.

I have found that you have not over estimated your recommendations for the Tubulars.

Yours respectfully,

FRED G. YOUNG.

WE COMMENT FURTHER ONLY BY SAYING THAT THE TUBULAR

Has a Hollow Bowl.

Is a close skimmer.

Has no spindle.

It is economical of power,

It spins on air.

Oil and repairs.

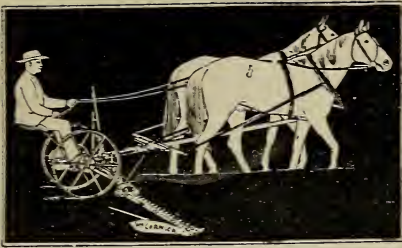
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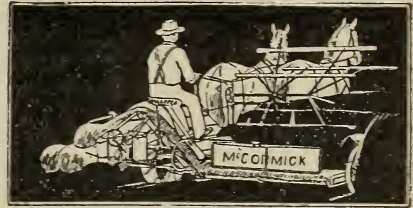
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Light Draft, Most Durable,
Work Perfect.

BUY ONE AND GET
SATISFACTION. ❀❀

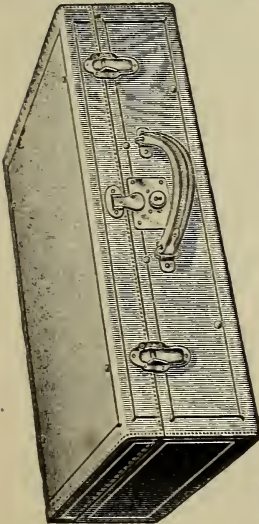
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There were 172 entries, and of these 142 scored as "Extras."

The four highest scores were on butter, entered by:

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W. I. Noyes, Moland, Minn.....	" 98½
J. P. Whalen, Jerico, Iowa.....	" 98½
L. E. Camp, Elmo, Ill.....	" 98½

Eleven others scored 98 points, and fifteen scored 97½.

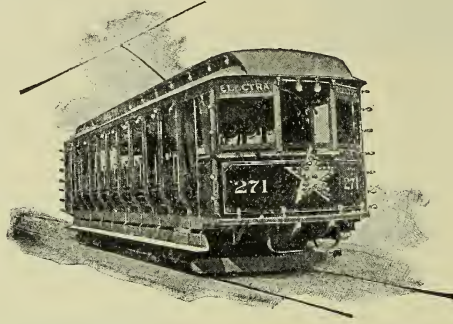
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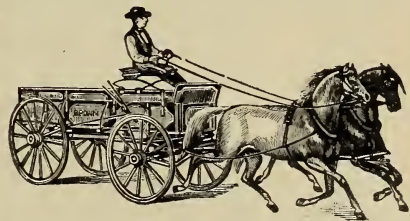
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All experienced Cream Separator operators concede that the United States is unapproached in thoroughness of separation and perfection of manufacture. All gears are enclosed; Bowl Spindle covered with brass shield; have ball bearings. The most cost is put into their manufacture, and they are therefore better and will wear longer, but are sold for less than others, considering capacity and close skimming—are therefore the cheapest, because the best.

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Is a title denoting
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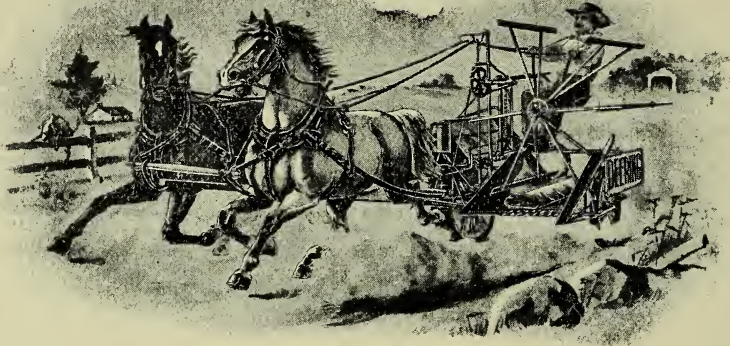
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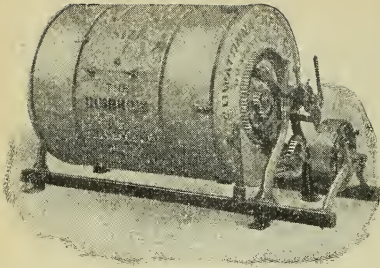


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That was higher than any other cow on the grounds and entitled her to Championship Honors.

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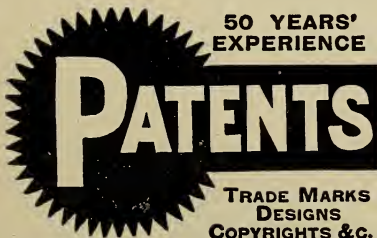
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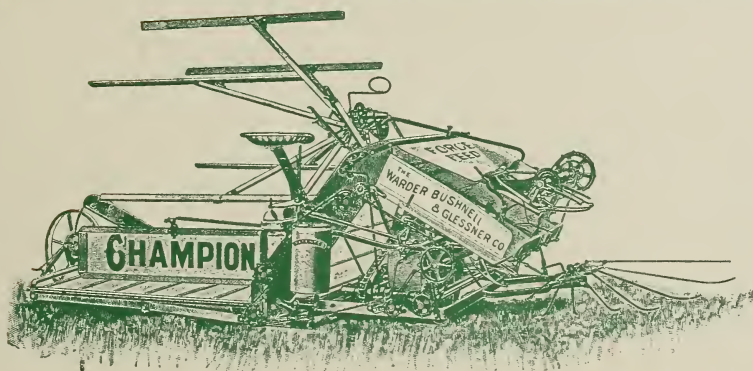
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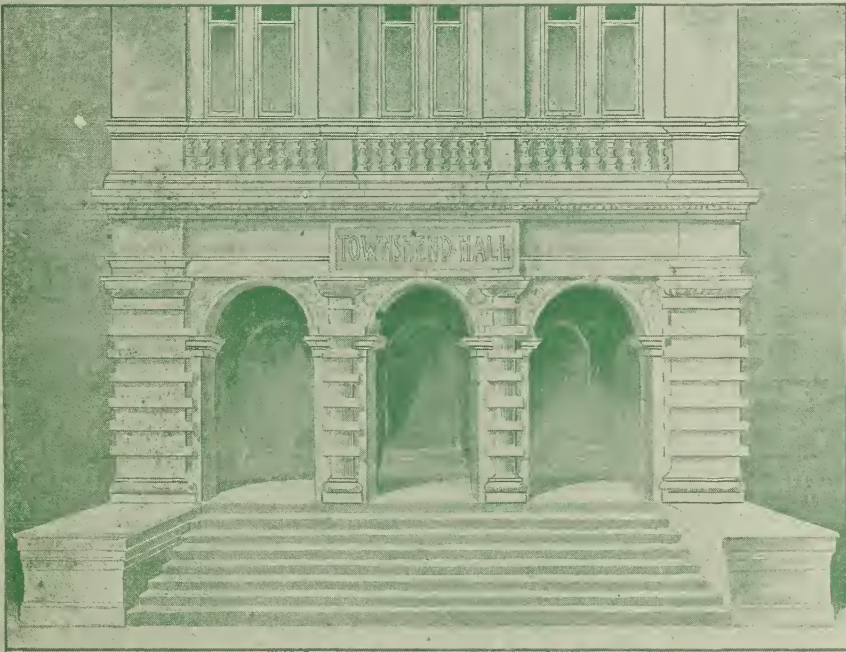
U.S.D. DEPARTMENT OF AGRICULTURE

JANUARY, 1900

No. 5.

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I FIND THAT THE TUBULARS ARE THE "BOYS" THAT CAN DO IT, NOT ONLY IN TEST BUT IN THE CONDITION IT LEAVES THE CREAM IN.

This is the incontrovertible evidence of a practical creamery man of large experience as is evidenced by his letter given in full below. Like many other creamerymen he bought a large amount of expensive experience before he "got right." Our object in publishing this experience is to warn others against such mistakes. Start right and be right for all time by buying the unequaled, economic and absolutely safe

Sharples Tubular Separators.

THE SHARPLES CO., Chicago, Ill.:

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Gentlemen—By request of your representative, Mr. S. F. Greene, I will give a synopsis of my experience in creamery work.

In the spring of '95 I purchased a hand separator (De Laval) and twenty gallon churn, for my use in a little dairy of thirty-three cows. On the morning of July 5th, my first patron delivered seventy-five pounds of milk, which I tallied on the wall, that being my weigh sheet for several weeks. My neighbors commenced coming with their milk and the handles were soon displaced with wooden pulleys, and a tread power installed to drive the machinery.

In December, '96, all of this machinery was thrown out and replaced with a steam engine, 150 gallon churn and an Acme separator. On the following June all of this machinery was again displaced by larger, as my old outfit was inadequate to handle the milk received, which was 4,000 pounds daily and steadily increasing.

My present factory is equipped with two boilers 90-H. P. capacity, 25-H. P. engine, Ice Plant. No. 7 Barber Combined Churn and Butter Worker, two Sharples Tubular Separators, Skim Milk Weigher, and a complete condensing outfit, and my daily run will average from ten to sixteen thousand pounds of milk.

In closing allow me to say a word for the Tubulars. I have always used Alphas and thought they could not be beaten, but by actual experience I find that the Tubulars are the "boys" that can do it, not only in test but in the condition it leaves the cream. They are very simple and easy to manage, requiring very little oil and steam to run them, and their average tests are from two to five one-hundredths.

I have found that you have not over estimated your recommendations for the Tubulars.

Yours respectfully,

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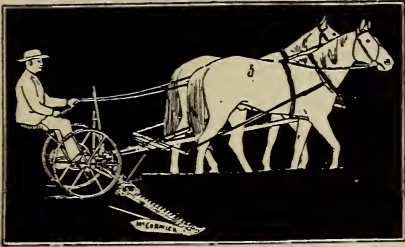
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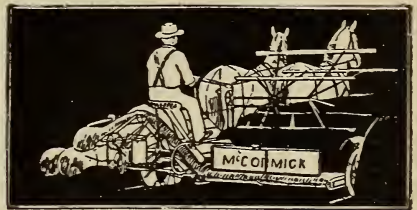
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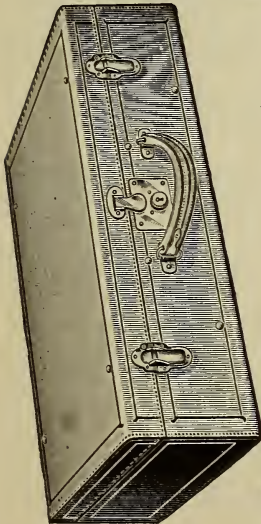
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There were 172 entries, and of these 142 scored as "Extras."

The four highest scores were on butter, entered by:

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W. I. Noyes, Moland, Minn.....	" 98½
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Eleven others scored 98 points, and fifteen scored 97½.

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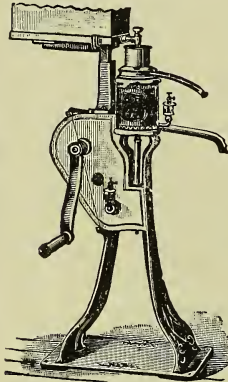
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GENTLEMEN:

In reply to yours, our bull Ruby's Statesman, has grown to be quite a bull now, and we are satisfied we received all we paid for; but am now sorry that I did not take your advice and pay \$15.00 more and get the other bull calf.

I was down to Mr. —————, at King's Mills, the other day and dropped in to see his cattle and the bull, as I had business in the neighborhood any way; by way of explanation, you know I bought the pick of 40 head, and he bought the next pick, so I got the best cattle, but our cows are all by the same sire. Well, he bought the bull calf that you wanted me to take, and has now some 15 heifers out of him, and they are a grand sight, all low down, deep bellied, with good promise of udders. Mine are not so good, still, they are above the average.

I never saw a more practical illustration of the value of a good sire. If I had paid \$15.00 more and taken that bull, I would have been worth \$500.00 more today—my cattle would make it.

Money is pretty close with me, but I will always have enough to buy a good one after this, and will be in the market in about six months for an A No. 1 bull calf, and want to buy of you, so keep it in mind, and when you get something that you will recommend, let me know, and I will try and get the money and send it for the calf.

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We think we violate no confidence in publishing this letter, it is not a strange one, nor is it a new subject, but it is the same old, old, story: of a man penny wise and pound foolish.

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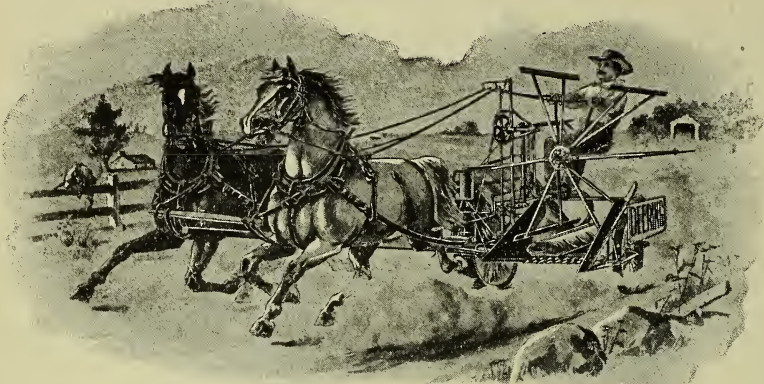
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Facts About the DISBROW



Spokane, Washington, November 1, 1899.

THE CREAMERY PACKAGE MFG. CO.

Minneapolis, Minn.

GENTLEMEN :

We herewith enclose you a photo of the exhibit we made at the Spokane Exposition. We had hoped to be able to place our DISBROW on the Exposition grounds and do all our churning there that we might show the public what an improvement the DISBROW churn is over the old Method of making butter, in that it can be made without any dust, dirt or flies getting into the butter.

Could the general public realize this one point it would help the sale of butter made by the DISBROW machine. The butter which scored 98 points and which won the first prize for us was made with a DISBROW Combined Churn Worker and was taken from our regular every-day make of butter and not made from cream specially handled for prize butter.

We also won first prize on butter at the Washington State Fair, at Yakima, on butter made by the DISBROW Combined Churn Worker—butter scoring 97 points.

Yours truly,

THE HAZELWOOD CREAMERY, LTD.

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	Leave.	Arrive.
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Cleveland & Buffalo..	† 9:15am	† 12:40pm
Local to Crestline....	† 9:15am	† 12:40pm
N. Y. & Boston Ex...	* 11:40am	* 3:15pm
Cleveland & Buffalo..	* 11:40am	* 3:15pm
Delaware & Cleveland	† 4:15pm	† 9:10pm
Local to Cleveland....	† 4:15pm	† 9:10pm
Southwestern Limited	* 10:00pm	* 7:08am
New York & Boston..	* 10:00pm	* 7:08am
Buff. & Niagara Ex..	* 10:00pm	* 7:08am

(Cincinnati, South and West.)

Dayton & Cincinnati..	* 2:10am	* 1:30am
Louisville & Nashville	* 2:10am	* 1:30am
Southwestern Limited	* 7:15am	* 9:55pm
Dayton & Cincinnati..	* 7:15am	* 9:55pm
Ind'napolis & Chicago	* 7:15am	* 9:55pm
Dayton & Cincinnati..	† 8:45am	† 6:30pm
Local to Cincinnati...	† 8:45am	† 6:30pm
Dayton & Cincinnati..	† 12:45pm	† 4:05pm
London & Springfield.	† 12:45pm	† 4:05pm
Dayton & Cincinnati..	* 3:25pm	* 11:35am
Ind'napolis & St. L's..	* 3:25pm	* 11:35am
Louisville & Nashville	* 3:25pm	* 11:35am
Dayton & Cincinnati..	* 5:45pm	* 4:05pm
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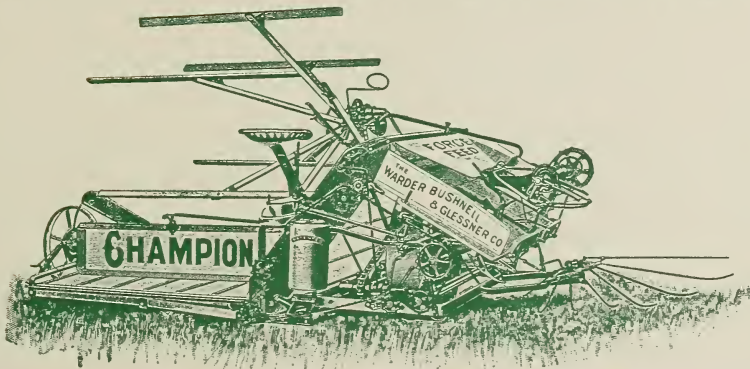
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I FIND THAT THE TUBULARS ARE THE "BOYS" THAT CAN DO IT, NOT ONLY IN TEST BUT IN THE CONDITION IT LEAVES THE CREAM IN.



This is the incontrovertible evidence of a practical creamery man of large experience as is evidenced by his letter given in full below. Like many other creamerymen he bought a large amount of expensive experience before he "got right." Our object in publishing this experience is to warn others against such mistakes. Start right and be right for all time by buying the unequalled, economic and absolutely safe _____

Sharples Tubular Separators.

THE SHARPLES CO., Chicago, Ill.:

BRISTOL, ILLINOIS, Aug 18, 1899.

Gentlemen—By request of your representative, Mr. S. F. Greene, I will give a synopsis of my experience in creamery work.

In the spring of '95 I purchased a hand separator (De Laval) and twenty gallon churn, for my use in a little dairy of thirty-three cows. On the morning of July 5th, my first patron delivered seventy-five pounds of milk, which I tallied on the wall, that being my weigh sheet for several weeks. My neighbors commenced coming with their milk and the handles were soon displaced with wooden pulleys, and a tread power installed to drive the machinery.

In December, '96, all of this machinery was thrown out and replaced with a steam engine, 150 gallon churn and an Acme separator. On the following June all of this machinery was again displaced by larger, as my old outfit was inadequate to handle the milk received, which was 4,000 pounds daily and steadily increasing.

My present factory is equipped with two boilers 90-H. P. capacity, 25-H. P. engine, Ice Plant, No. 7 Barber Combined Churn and Butter Worker, two Sharples Tubular Separators, Skim Milk Weigher, and a complete condensing outfit, and my daily run will average from ten to sixteen thousand pounds of milk.

In closing allow me to say a word for the Tubulars. I have always used Alphas and thought they could not be beaten, but by actual experience I find that the Tubulars are the "boys" that can do it, not only in test but in the condition it leaves the cream. They are very simple and easy to manage, requiring very little oil and steam to run them, and their average tests are from two to five one-hundredths.

I have found that you have not over estimated your recommendations for the Tubulars.

Yours respectfully,

FRED G. YOUNG.

WE COMMENT FURTHER ONLY BY SAYING THAT THE TUBULAR

Has a Hollow Bowl.

Is a close skimmer.

Has no spindle.

It is economical of power,

It spins on air.

Oil and repairs.

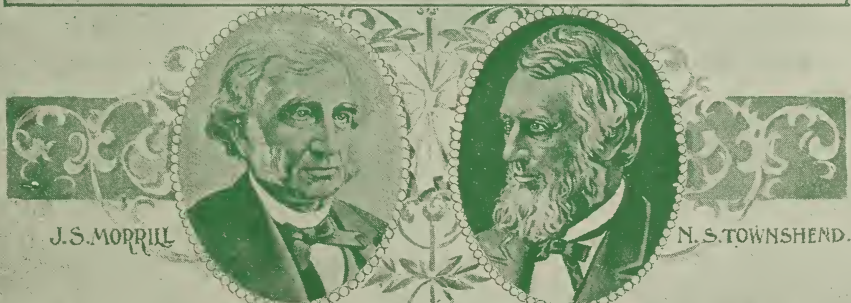
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J.S. MORRILL

N.S. TOWNSHEND.

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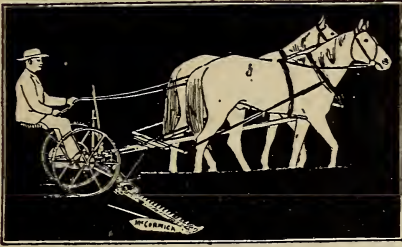
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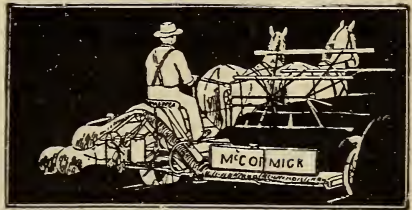
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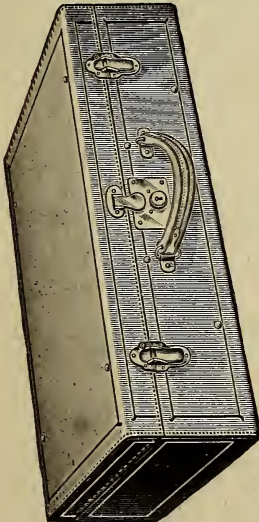
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W. I. Noyes, Moland, Minn.....	" 98½
J. P. Whalen, Jerico, Iowa.....	" 98½
L. E. Camp, Elmoville, Ill.....	" 98½

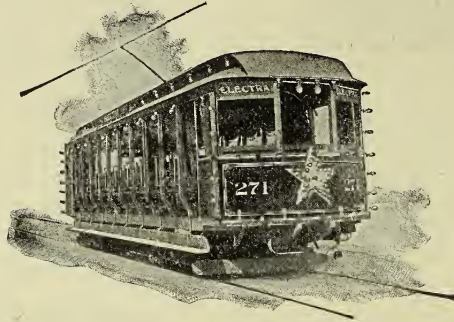
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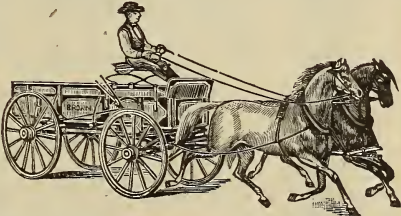
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For Every Variety of Use is the

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AND THESE ARE THE REASONS WHY:

The "BROWN" principles increase its strength, durability and neat appearance.

We use Double Sliders for the coupling pole.

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Machine Boxed Wheels—must be true.

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Have Extension Shoe Skein which fully protects axle—used only on THE "BROWN" WAGONS.

Branch Chains to tongue chains—can't whip horse's legs.

Besides all this it is stamped "BROWN," which is a guarantee of excellence and superiority.

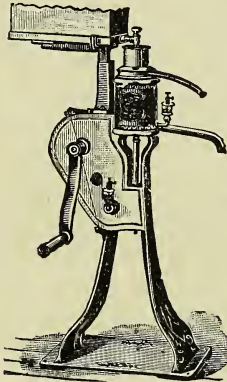
All about styles and sizes in free circulars.

BROWN MFG. CO., ZANESVILLE, O.

"Improvement the Order of the Age"

Is true in many lines of manufacture, but it is
especially so of the

Improved U. S. Separators



Although this well-known make of Cream Separators has been on the market only a comparatively few years, yet, owing to their superior merits, have led from the start, until now with their increased capacities and other

1900 or "New Century" Improvements

**They are further in advance of all competitors
than ever**

**More Exhaustive Skimming
Greater Capacity According to Price
Less Power Required to Operate
Greater Simplicity and Durability**

**Are some of the important points in which
they excel**

If prospective purchasers wish to be sure and make no mistake they should profit by the experience of those who have demonstrated in every-day use that

The Improved U. S. Separator is the Best

Write for circulars containing many statements to this effect.

We also furnish a complete line of Dairy and Creamery apparatus. Catalogues free for the asking.

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"Sprague" Adjustable and "Helmer" Continuous Pressure
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Something entirely new and a great improvement.
The Marschall Rennet Test.
Chr. Hansen's Danish Dairy Preparations.
"Columbian" Butter Color.

The above Specialties are highly recommended by us. Prices
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D. H. BURRELL & CO.

Little Falls, N. Y.

Wells, Richardson & Co.'s Improved Butter Color.

The Standard Color of the World.

Prize-winning butter makers of the United States, Canada, England, Ireland, Scotland, Australia, South Africa and Argentine Republic, use this pure color.

Leading chemists endorse it as an absolutely harmless color for butter.

R. A. Witthaus, A. M., M. D., Professor of Chemistry, University of the City of New York, Medical Dept.; Jo. H. Linsley, M. D., Director of Laboratory of Hygiene, Vermont State Board of Health; Henry Leffmann, M. D., Chief Advising Chemist to the Dairy and Food Commission of Pennsylvania; W. S. Eberman, Chemist to the Minnesota Food and Dairy Commission; the Hon. Sidney Fisher, Minister of Agriculture of the Dominion of Canada, and many other experts in scientific dairying affirm that Wells, Richardson & Co.'s Improved Butter Color is entirely harmless when used in butter as directed.

The fact that fully 95 per cent. of all the butter made in the United States is colored with Wells, Richardson & Co.'s Improved Butter Color, is an unanswerable proof of its superiority and purity.

Wells, Richardson & Co.'s Improved Butter Color is the purest color made and the nearest to the natural shade of June butter.

WELLS, RICHARDSON & CO., Burlington, Vt.

NOVEMBER 23d, 1899.

W. B. Smith & Son, Columbus, Ohio.
 Breeders of Pure Holstein Cattle.

GENTLEMEN:

In reply to yours, our bull Ruby's Statesman, has grown to be quite a bull now, and we are satisfied we received all we paid for; but am now sorry that I did not take your advice and pay \$15.00 more and get the other bull calf.

I was down to Mr. _____, at King's Mills, the other day and dropped in to see his cattle and the bull, as I had business in the neighborhood any way; by way of explanation, you know I bought the pick of 40 head, and he bought the next pick, so I got the best cattle, but our cows are all by the same sire. Well, he bought the bull calf that you wanted me to take, and has now some 15 heifers out of him, and they are a grand sight, all low down, deep bellied, with good promise of udders. Mine are not so good, still, they are above the average.

I never saw a more practical illustration of the value of a good sire. If I had paid \$15.00 more and taken that bull, I would have been worth \$500.00 more today—my cattle would make it.

Money is pretty close with me, but I will always have enough to buy a good one after this, and will be in the market in about six months for an A No. 1 bull calf, and want to buy of you, so keep it in mind, and when you get something that you will recommend, let me know, and I will try and get the money and send it for the calf.

The Demand for Holsteins is very good just now, and hardly a day passes but some one is here for cow or calf, and have been offered some good prices, too, but do not care to sell now, as they allow me a profit on each day's work.

Trusting the cattle business is good with you, and that you will not forget about the bull calf,

I am yours truly,

We think we violate no confidence in publishing this letter, it is not a strange one, nor is it a new subject, but it is the same old, old, story: of a man penny wise and pound foolish.

Our calves are all good, but some are better than others, don't you want to build up your herd? The best and only place to start is the bull. Can't we sell you one? Write to us, we may be able to do you good.

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That's
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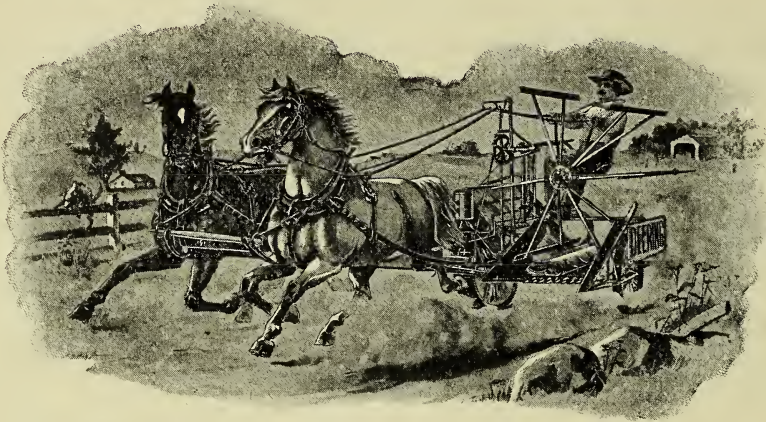
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N. Y. & Boston Ex...	* 11:40am	* 3:15pm
Cleveland & Buffalo..	* 11:40am	* 3:15pm
Delaware & Cleveland	† 4:15pm	† 9:10pm
Local to Cleveland....	† 4:15pm	† 9:10pm
Southwestern Limited	* 10:00pm	* 7:08am
New York & Boston..	* 10:00pm	* 7:08am
Buff. & Niagara Ex..	* 10:00pm	* 7:08am

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Dayton & Cincinnati..	* 2:10am	* 1:30am
Louisville & Nashville	* 2:10am	* 1:30am
Southwestern Limited	* 7:15am	* 9:55pm
Dayton & Cincinnati..	* 7:15am	* 9:55pm
Ind'napolis & Chicago	* 7:15am	* 9:55pm
Dayton & Cincinnati..	† 8:45am	† 6:30pm
Local to Cincinnati...	† 8:45am	† 6:30pm
Dayton & Cincinnati..	† 12:45pm	† 4:05pm
London & Springfield.	† 12:45pm	† 4:05pm
Dayton & Cincinnati..	* 3:25pm	* 11:35am
Ind'napolis & St. L's..	* 3:25pm	* 11:35am
Louisville & Nashville	* 3:25pm	* 11:35am
Dayton & Cincinnati..	* 5:45pm	† 4:05pm
Springfield & Dayton.	* 5:45pm	* 9:40am

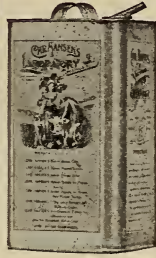
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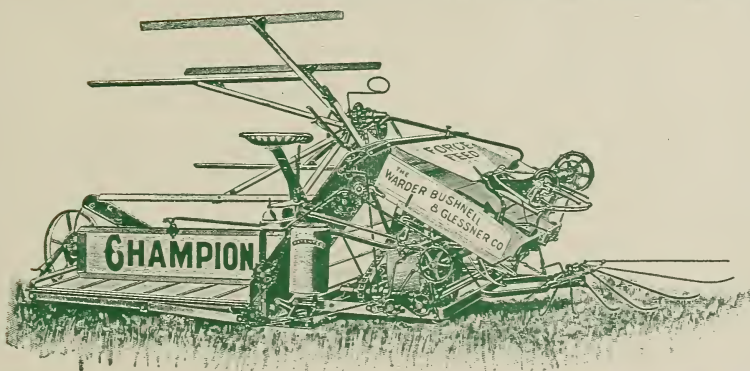
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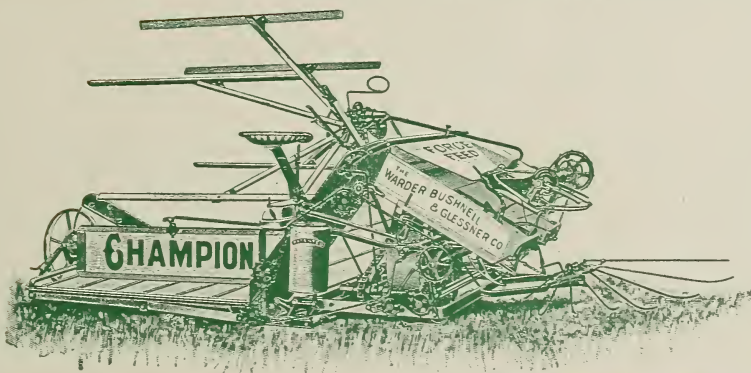
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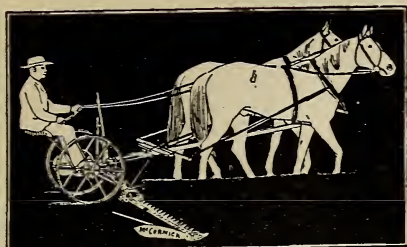
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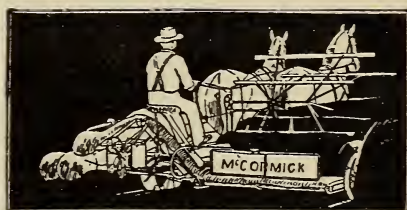
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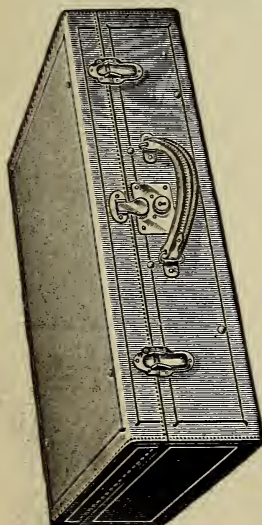
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L. E. Camp, Elmoreville, Ill.....	" 98½

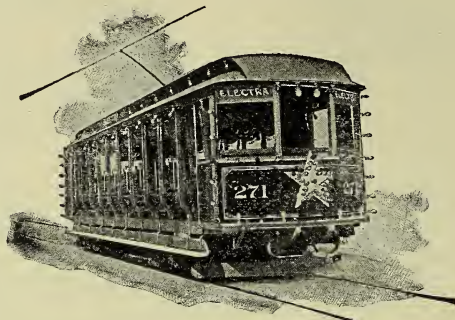
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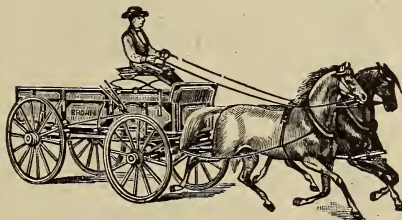
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We use Double Sliders for the coupling pole.

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Machine Boxed Wheels—must be true.

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Have Extension Shoe Skein which fully protects
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horse's legs.

Besides all this it is stamped "BROWN," which
is a guarantee of excellence and superiority.

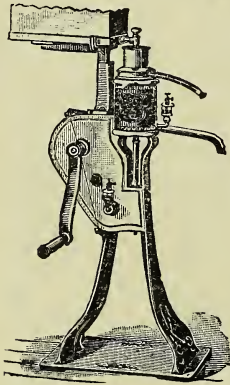
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"Improvement the Order of the Age"

Is true in many lines of manufacture, but it is
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Although this well-known make of Cream Separators has been on the market only a comparatively few years, yet, owing to their superior merits, have led from the start, until now with their increased capacities and other

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They are further in advance of all competitors
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More Exhaustive Skimming
Greater Capacity According to Price
Less Power Required to Operate
Greater Simplicity and Durability

Are some of the important points in which
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If prospective purchasers wish to be sure and make no mistake they should profit by the experience of those who have demonstrated in every-day use that

The Improved U. S. Separator is the Best

Write for circulars containing many statements to this effect.

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The Marschall Rennet Test.

Chr. Hansen's Danish Dairy Preparations.

"Columbian" Butter Color.

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Little Falls, N. Y.

Wells, Richardson & Co.'s Improved Butter Color.

The Standard Color of the World.

Prize-winning butter makers of the United States, Canada, England, Ireland, Scotland, Australia, South Africa and Argentine Republic, use this pure color.

Leading chemists endorse it as an absolutely harmless color for butter.

R. A. Witthaus, A. M., M. D., Professor of Chemistry, University of the City of New York, Medical Dept.; Jo. H. Linsley, M. D., Director of Laboratory of Hygiene, Vermont State Board of Health; Henry Leffmann, M. D., Chief Advising Chemist to the Dairy and Food Commission of Pennsylvania; W. S. Eberman, Chemist to the Minnesota Food and Dairy Commission; the Hon. Sidney Fisher, Minister of Agriculture of the Dominion of Canada, and many other experts in scientific dairying affirm that Wells, Richardson & Co.'s Improved Butter Color is entirely harmless when used in butter as directed.

The fact that fully 95 per cent. of all the butter made in the United States is colored with Wells, Richardson & Co.'s Improved Butter Color, is an unanswerable proof of its superiority and purity.

Wells, Richardson & Co.'s Improved Butter Color is the purest color made and the nearest to the natural shade of June butter.

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NOVEMBER 23d, 1899.

W. B. Smith & Son, Columbus, Ohio.
 Breeders of Pure Holstein Cattle.

GENTLEMEN:

In reply to yours, our bull Ruby's Statesman, has grown to be quite a bull now, and we are satisfied we received all we paid for; but am now sorry that I did not take your advice and pay \$15.00 more and get the other bull calf.

I was down to Mr. _____, at King's Mills, the other day and dropped in to see his cattle and the bull, as I had business in the neighborhood any way; by way of explanation, you know I bought the pick of 40 head, and he bought the next pick, so I got the best cattle, but our cows are all by the same sire. Well, he bought the bull calf that you wanted me to take, and has now some 15 heifers out of him, and they are a grand sight, all low down, deep bellied, with good promise of udders. Mine are not so good, still, they are above the average.

I never saw a more practical illustration of the value of a good sire. If I had paid \$15.00 more and taken that bull, I would have been worth \$500.00 more today—my cattle would make it.

Money is pretty close with me, but I will always have enough to buy a good one after this, and will be in the market in about six months for an A No. 1 bull calf, and want to buy of you, so keep it in mind, and when you get something that you will recommend, let me know, and I will try and get the money and send it for the calf.

The Demand for Holsteins is very good just now, and hardly a day passes but some one is here for cow or calf, and have been offered some good prices, too, but do not care to sell now, as they allow me a profit on each day's work.

Trusting the cattle business is good with you, and that you will not forget about the bull calf,

I am yours truly,

We think we violate no confidence in publishing this letter, it is not a strange one, nor is it a new subject, but it is the same old, old, story: of a man penny wise and pound foolish.

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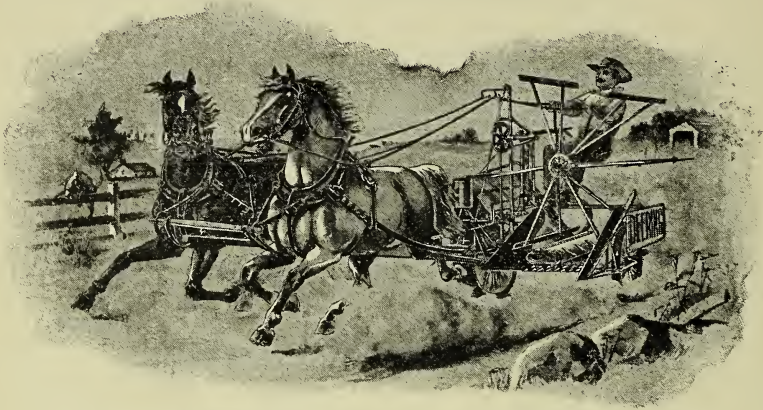
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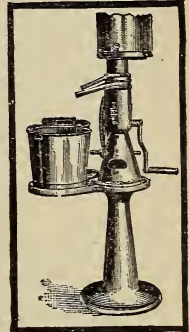
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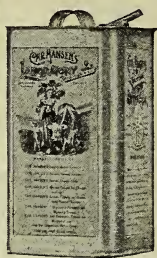
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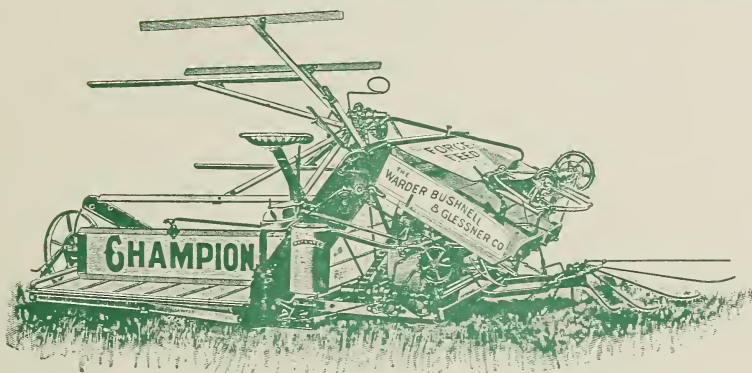
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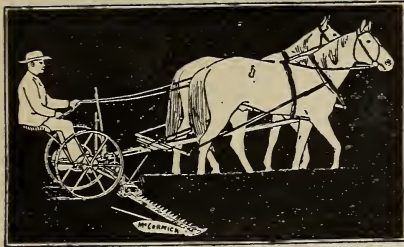
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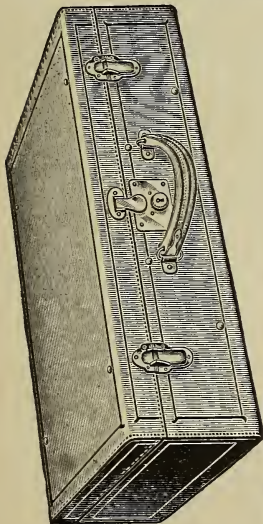
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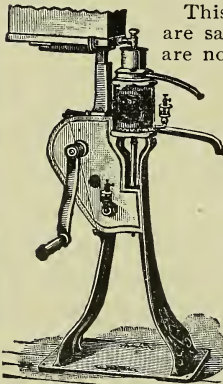
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R. A. Witthaus, A. M., M. D., Professor of Chemistry, University of the City of New York, Medical Dept.; Jo. H. Linsley, M. D., Director of Laboratory of Hygiene, Vermont State Board of Health; Henry Leffmann, M. D., Chief Advising Chemist to the Dairy and Food Commission of Pennsylvania; W. S. Eberman, Chemist to the Minnesota Food and Dairy Commission; the Hon. Sidney Fisher, Minister of Agriculture of the Dominion of Canada, and many other experts in scientific dairying affirm that Wells, Richardson & Co.'s Improved Butter Color is entirely harmless when used in butter as directed.

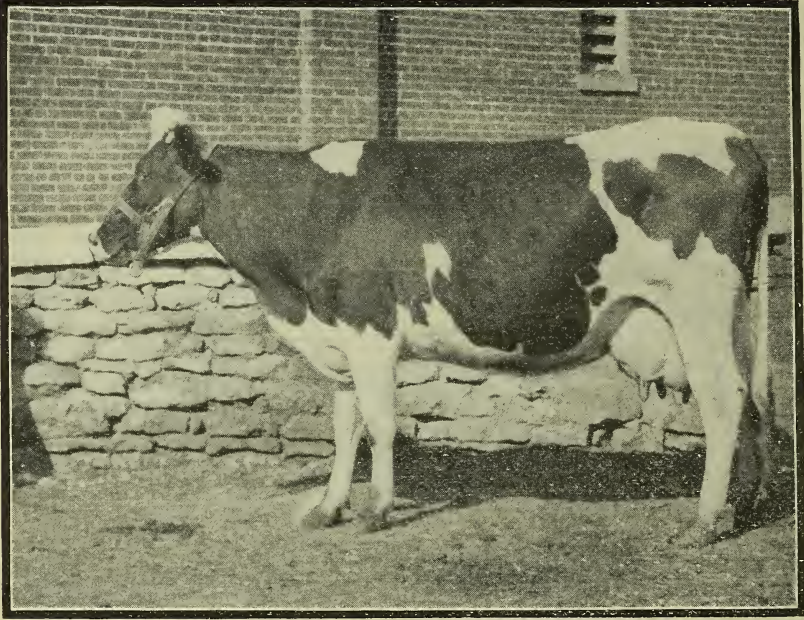
The fact that fully 95 per cent. of all the butter made in the United States is colored with Wells, Richardson & Co.'s Improved Butter Color, is an unanswerable proof of its superiority and purity.

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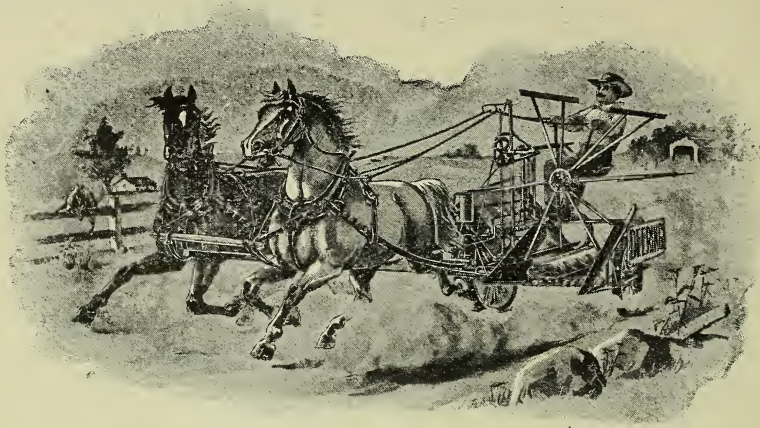
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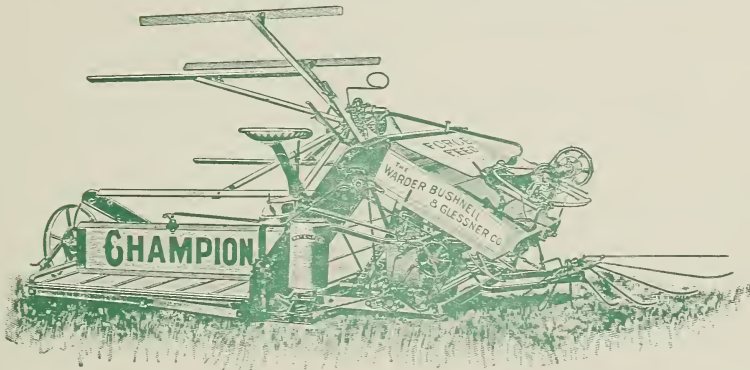
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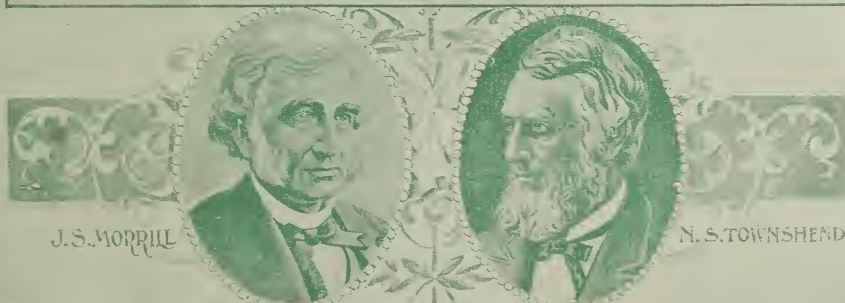
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U. S. Department of Agriculture

No. 9.

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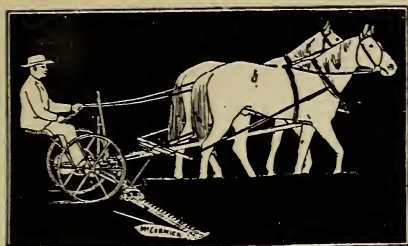
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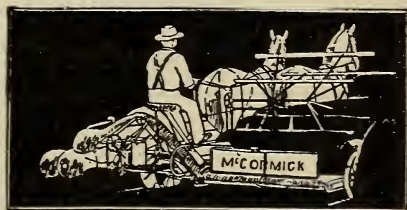
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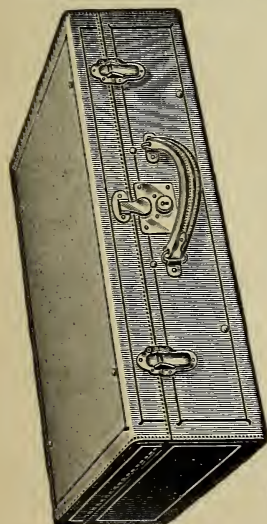
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J. P. Whalen, Jerico, Iowa.....	" 98½
L. E. Camp, Elmo, Ill.....	" 98½

Eleven others scored 98 points, and fifteen scored 97½.

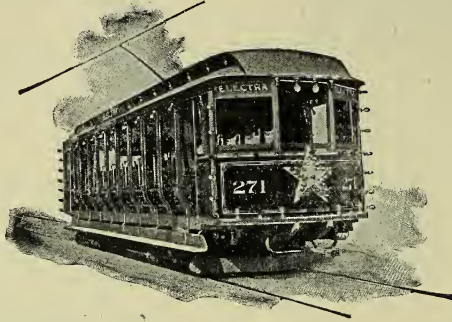
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Besides all this it is stamped "BROWN," which is a guarantee of excellence and superiority.

All about styles and sizes in free circulars.

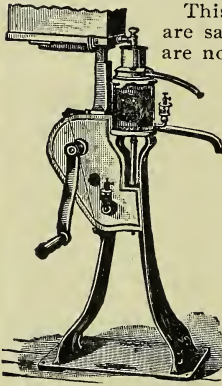
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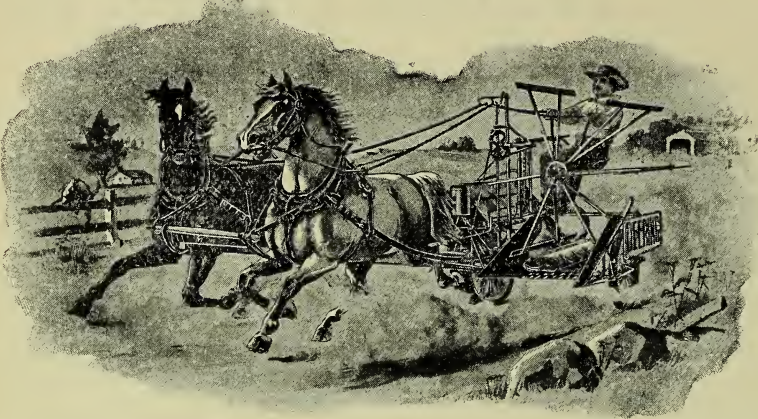
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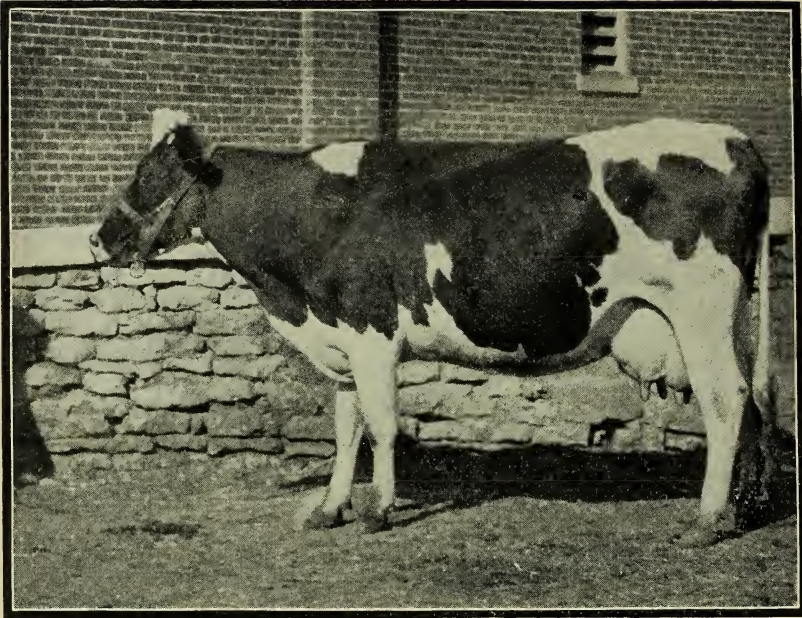


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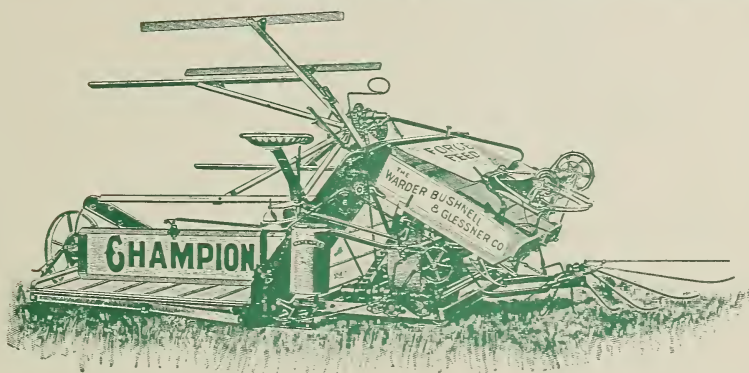
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